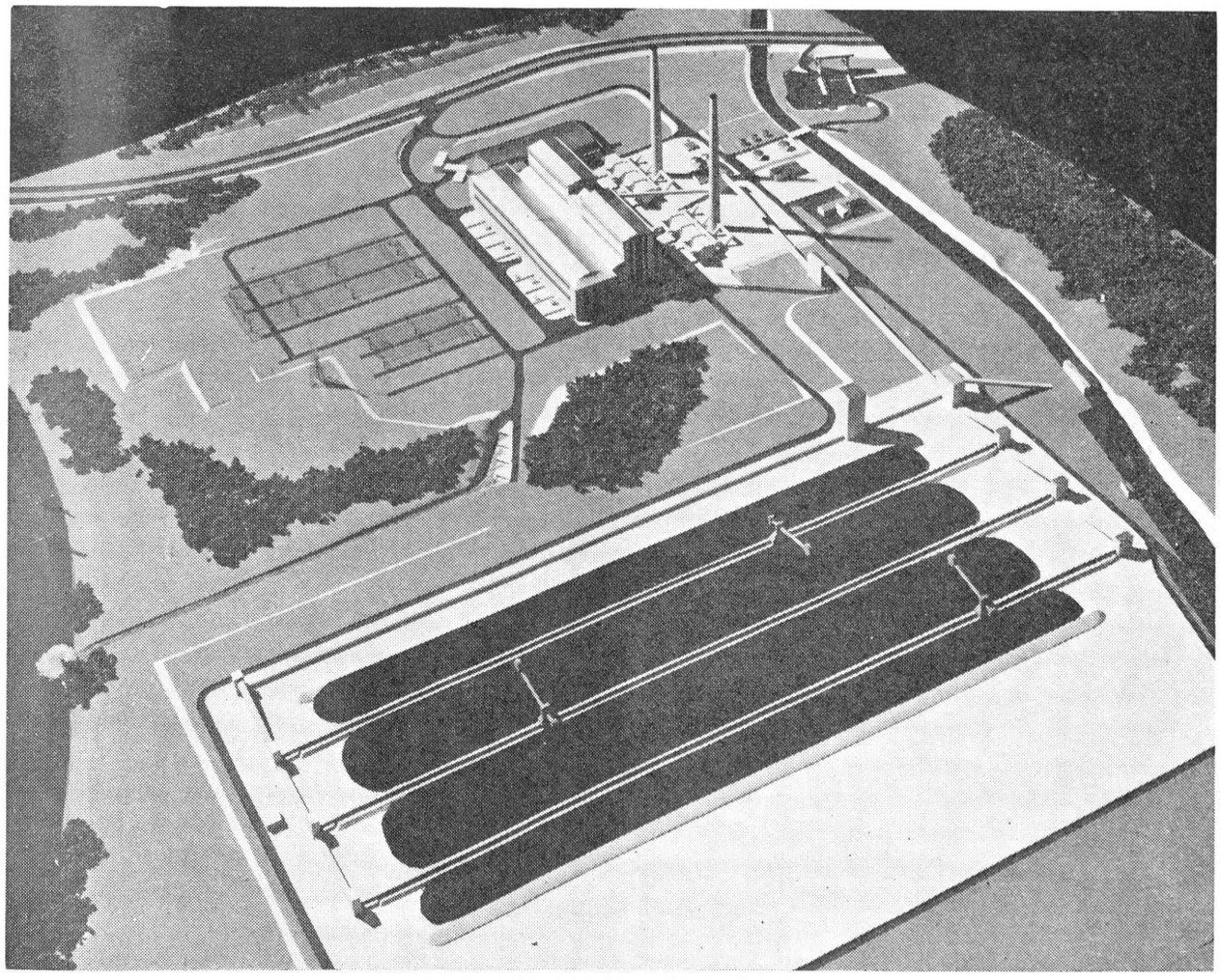
STATE ELECTRICITY COMMISSION OF QUEENSLAND



Model of the Gladstone Power Station.

THIRTY-FIFTH ANNUAL REPORT 1972

Presented to Parliament by Command

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A. 53—1972

THE STATE ELECTRICITY COMMISSION OF QUEENSLAND

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Commissioner for Electricity Supply

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Deputy Commissioner (Administration)

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Chief Engineer

A. F. WEST, M.I.E.Aust.
Deputy Chief Engineer (Design)

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Deputy Chief Engineer (Planning)

Inspectorial Branch

H. L. DOWDELL
Chief Electrical Inspector

Secretarial Division

J. M. WATTS, A.A.U.Q.
Secretary

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S.E.A.'s tall microwave tower on Mount Gravatt is part of a scheme introducing the most advanced communication system ever used by a Queensland electricity supply authority.

THE STATE ELECTRICITY COMMISSION OF QUEENSLAND

THIRTY-FIFTH ANNUAL REPORT

To the Honourable H. A. McKechnie, M.L.A.,
Minister for Local Government and Electricity.

Sir,—I have the honour to present the Thirty-fifth Annual Report of the State Electricity Commission of Queensland for the financial year ended 30th June, 1972.

This is the first Annual Report which I have the pleasure to present, having taken over the duties of Commissioner for Electricity Supply on 13th March, 1972. I would like to thank the Government for the opportunity to serve the State of Queensland in this important post and I pledge myself to discharge the duties of my office as loyally and diligently as I can.

The year under review has been a period of dynamic progress for the electricity supply industry of Queensland and the demands of all our consumers have been met. We are conscious of the plight of those citizens of our State who do not as yet enjoy the benefit of reticulated supply and are actively researching ways and means of reaching as many as we can.

In presenting this report I would like to pay tribute to my distinguished predecessor, Mr. H. Neil Smith. This man, during his 25 years of service to the industry, has made a massive contribution to the development of the State and to the welfare of its citizens.

I would also like to thank you, Sir, and other Ministers and Officers of the Crown, for the help accorded me in these early months in my appointment, and also the staff of the Commission for their continued loyalty and assistance.

Cnr. Gregory Terrace & Warry St.,
Brisbane, November 1972.

E. D. MURRAY,
Commissioner for Electricity Supply.

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1. GENERAL REVIEW

(i) Highlights

Expenditure on capital works by the electricity supply industry during the past financial year totalled $68 million of which $53 million was found from borrowings and other external resources.

Of this expenditure $20 million was on generation works, $23 million on transmission works and the balance of $25 million on distribution and miscellaneous works.

Of the expenditure on generation works $11,796,762 was on the Swanbank power stations, $2,498,219 on the Collinsville power station, and $4,939,150 in Gladstone power station.

The major expenditure on transmission was the construction of the 275kV line from South Pine to Gladstone on which $12,620,928 was spent during the year.

Electricity sales increased by 10·5 per cent. during the year and all consumer demands were met. This growth rate compares with 8·8 per cent. in the preceding year.

New generating plant totalling 126MW was commissioned during the year, and over 2,500 miles of transmission and distribution lines were completed throughout the State.

(ii) Organisation

In pursuance of the Government's declared policy of creating one central generating authority which would control generation and main transmission of electricity in Queensland, the Commission has been directed by the Governor in Council to review all aspects of the future organisation of the electricity supply industry in Queensland.

As stated in the Commission's last Annual Report, the organisation of the industry in Queensland, although steadily evolving towards closer integration, is still substantially fragmented compared with some other States. It is envisaged that the formation of a central generating authority will both necessitate and provide an opportunity for achieving further rationalisation and integration to ensure that the needs of the consumer are met most effectively and that this is done at the lowest possible cost.

The Commission is now examining the organisation with a view to the submission to the Government of a programme setting out the key points necessary for the reorganisation of the industry, and the proposed dates for the implementation of each of these points.

The planned conversion in 1975 of the variable interest stock of the Southern Electric Authority to secured stock will enable the reconstitution of the Authority within the framework of a more closely integrated electricity supply industry in Queensland.

(iii) Investigations and Planning

The first 275kV transmission line between Gladstone and Brisbane will be commissioned later this year. This will allow energy from South-East Queensland to be supplied initially to Central Queensland to meet the growing demand in this area. When the Gladstone Power Station is commissioned in 1975 the flow of energy will be reversed and the output of the Gladstone Power Station will augment supply in Southern Queensland.

A second 275kV transmission line from Gladstone to Brisbane will be brought into service with the commissioning of the second generating set in Gladstone Power Station in late 1975. Planning of this line is well advanced and work has commenced on the acquisition of line easements.

Investigations are in hand to finalise the commissioning dates for the third and fourth generating sets at Gladstone Power Station. These dates have been kept flexible in all major plant contracts for the power station so that they can be varied to match, as far as is practicable and economic, the growth in demand, including the possible

large industrial loads in Central Queensland. Based on existing contractural arrangements a decision has to be made by March, 1973, on the commissioning dates of the third and fourth sets.

There has been a general deceleration in plans for the expansion of the export coal mining operations. In North Queensland this has resulted in the commissioning date of the second 60MW set at Collinsville "B" power station being deferred. It is now anticipated that this set will not be required in service until 1978 or later.

Current forecasts of future demands indicate that the next major power station after Gladstone to serve the Central and Southern interconnected system will be required in service for the winter of 1979.

A decision on the size and location of this new station is expected by mid-1973 following completion of investigations by Joint Planning Committees of the Commission and major Electric Authorities.

An investigation is being made into the feasibility and cost of constructing a pumped storage hydro-electric scheme near Wivenhoe in the Brisbane River Valley. Should it proceed, this scheme would provide about 500MW of peak load generating capacity by the early 1980's.

Long term planning must of course provide for massive growth in electricity generation and transmission facilities by the end of this century, recognising the limitations of existing resources and the necessity to preserve and improve the quality of life. To this end, since a major power station is likely to be required about every four years, consideration is being given to the selection and reservation of future power station sites so that the established pattern of land use will not be upset when the power stations are developed.

This examination of the environmental problems calls for the closest possible association of the Commission with all sections of the community engaged in planning activities and the application of the most advanced developments in power system technology.

(iv) System Development

An additional 126MW of generating plant was commissioned during the year giving a total installed capacity of 1,897MW at 30th June, 1972. Plant was commissioned at Swanbank B (120MW), Roma (4·3MW) and Longreach, Thursday Island, and Boulia jointly (1·3MW).

Site works at the new Gladstone power station and on stage 3 of the Collinsville power station have progressed favourably during the current year. At Gladstone foundations are being poured at the rate of 1,000 cubic yards per week and the main boiler contractor has moved on to the site. At the end of June, 13 major contracts had been awarded and tenders for a further 14 were under consideration. At Collinsville erection of plant is well in hand and the majority of major contracts have been let.

The first 275kV line from South Pine to Gladstone is substantially completed and will be energised before December, 1972. Preliminary works have commenced on the second line.

Further works were carried out on the major transmission and distribution systems of the various Queensland authorities in 1971–72. By 30th June, 1972, there were 51,933 miles of line in service compared with 49,417 miles at the end of the previous period. This has included the further development of the Belmont–Swanbank–Mudgeeraba 275kV project and extension of the 110kV system into the central city area to a major substation at Victoria Park.

Planning, preliminary surveys and other works associated with the transmission line development of the south, central and northern Queensland systems has continued.

Rural electrification has continued in all areas of the State.

(v) Electricity Utilisation and Marketing

In this field a major development during the year under review was an international convention held in Brisbane under the auspices of the Electrical Development Association of Queensland.

The Commission, a founding member of the EDAQ, provided its marketing and its public relations facilities for the benefit of the convention.

Personalities of world renown were brought to Brisbane to address the convention, (Third South Pacific Electrical Convention) on electricity marketing and kindred topics.

(vi) Safety

During the year inspections were undertaken of the works of all electric authorities including their safety equipment and safe working procedures. The Queensland Electrical Education Council and the Electrical Industry Safety Advisory Committee set up by the Commission in 1957 and 1964 respectively have been active in the promotion of safety in the use of electricity by the public and within the electrical industry. Despite the intensive work of these bodies 376 electrical accidents were recorded during the year.

This total represents a slight decrease on the previous year but fatalities increased by eight.

There appears to be an ever increasing need to educate the public in the safe use of electricity and to this end a safety campaign implemented during the previous year in all secondary schools throughout Queensland has been continued during the year under review.

Between 35,000 and 40,000 students were involved and it is hoped that this campaign will not only progressively educate the future users of electricity in electrical safety but will also bring to the notice of their parents the principles to be observed in the safe use of electricity.

(vii) Price of Electricity

After a lengthy period of stable prices in the industry, rising costs have resulted in an increase in electricity prices in a number of cases.

The continuing inflation in costs is bound to have further impact on the price of electricity. But the rate of rise is significantly lower than the consumer price index increase.

(viii) Capital Works

Expenditure on electrical works during the past year totalled $68,244,291.

The approved capital works programme for 1972–73 total $78,173,825.

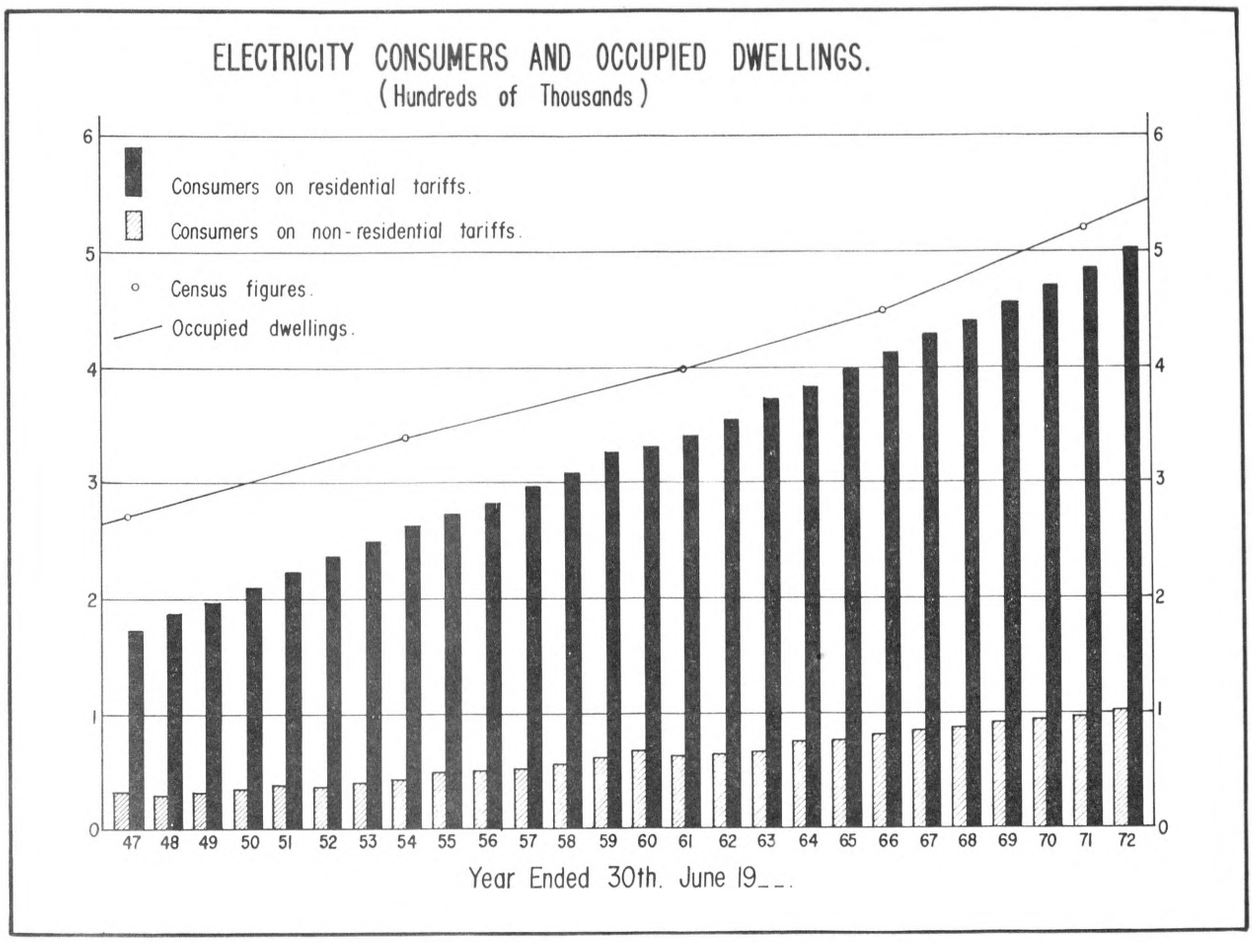
To 30th June, 1972, the total investment in assets of Queensland electric authorities totalled $820 million.

(ix) Statistical Summary

Item	1970–71	1971–72
Units generated (millions)	5,789	6,379
Units sold (millions)	4,895	5,408
Number of Consumers	581,227	603,450
Retail revenue ($millions)	108·3	119
Annual capital expenditure ($millions)	54	68
Progressive Capital expenditure ($millions)	752	820
Generating capacity (MW)	1,771	1,897
Circuit miles of line	49,417	51,933
Maximum demand (MW)	1,335	1,435

(x) Commission's Building

In March, 1972, the Commission occupied the first stage of its new office building, erected in the rear half of the site at 447 Gregory Terrace, Brisbane. The second stage of the new building, situated on the first half of the site, was completed and occupied in September, 1972.



2. ORGANISATION

There have been no major changes in the organisation of the industry in Queensland during the past financial year.

The principal operating authorities in south-eastern Queensland are the Southern Electric Authority and the Brisbane City Council. The Authority is responsible for generation and main transmission in south-east Queensland and also for distribution outside the boundary of the City of Brisbane, within which area the Brisbane City Council is responsible for distribution and buys in bulk from the Southern Electric Authority. The network of the Wide Bay-Burnett Regional Electricity Board is interconnected with that of the Southern Electric Authority, from which it purchases in bulk to supplement the output of its own power station.

The Dalby Town Council, which supplies the western Darling Downs, also purchases in bulk from the Southern Electric Authority.

In central Queensland, the Capricornia Regional Electricity Board is responsible for generation, transmission and distribution. The central western area is supplied by the Central Western Regional Electricity Board from a smaller isolated network. Investigations are proceeding into the feasibility of eventual amalgamation of these two regional electricity boards.

In northern Queensland generation and main transmission are the responsibility of the Northern Electric Authority which sells electricity in bulk to the three interconnected northern distributing authorities—the Cairns, Townsville and Mackay Regional Electricity Boards. The Authority also sells electricity in bulk to Utah Development Company. The Townsville and Cairns Boards also operate internal combustion plant in several isolated power stations.

Of the 11 authorities in West Queensland, the Balonne Shire Council and the North West County Council buy electricity in bulk from the Electricity Commission of New South Wales at the uniform bulk supply price which prevails in that State. The Mount Isa City Council is supplied in bulk by Mount Isa Mines Ltd for public distribution in Mount Isa and Cloncurry.

The remaining authorities, including the Central Western Regional Electricity Board, operate internal combustion plant in isolated power stations using diesel fuel, excepting Roma where natural gas is also used, and Birdsville which still relies principally on hydro-electricity. Costs and electricity prices are high in these isolated areas.

Boundaries of the various electric authority areas of supply are shown on the map attached to this report. The map also illustrates the generation centres and transmission and distribution systems throughout the State.

The Government's declared objective is to establish in Queensland one central generating authority with full public responsibility for generation, main transmission and bulk supply to a number of distributing authorities. The latter will have the function of distributing and retailing electricity to final consumers. By virtue of their size and constitution the distributing authorities will be close to final consumers and will be able to appraise and meet the consumers' needs most effectively.

To achieve the above objective it will be necessary to sever the generation and main transmission functions from Capricornia and Wide Bay-Burnett Regional Electricity Boards, and the distribution function from the Southern Electric Authority.

Construction of the 275kV inter-connecting link between the southern and central grids and the construction of the 1100MW generating station at Gladstone will establish a single power network in those two areas of the State. It is expected that within the next decade it will be economic to extend the 275kV grid to Northern Queensland and incorporate the northern network into one interconnected system of the central generating authority.

Two significant events planned for 1975 will have a major impact on the organisation of the supply industry in Queensland. Firstly, the first generating plant at the Gladstone Power Station is expected to go into service which will require incorporating of the power station in the central generating authority. Secondly, the planned conversion of the variable interest stock of the Southern Electric Authority to secured stock will enable the reconstitution of the Authority with full public responsibility.

In anticipation of the above, the Commission has been directed by the Governor in Council to review all aspects of the future organisation of the electricity supply industry in Queensland. The Commission is now examining the organisation with a view to the submission of a programme to the Government setting out the key points necessary for the reorganisation of the industry, and the proposed dates for the implementation of each of these points.

This is in accordance with one of the Commission's most important functions—planning and ensuring the proper development and co-ordination of the electricity supply industry throughout the State. Its other functions include enforcement of safety regulations, control of electricity charges, raising of capital for development and administering of all electricity supply legislation.

3. INVESTIGATIONS AND PLANNING

The Commission, and the Joint Planning Committees of the Commission and the Electric Authorities concerned, have continued investigations to determine the most economic sources of energy and the most suitable location of future power stations in Queensland.

In North Queensland the first 60MW set of the approved 120MW development at Collinsville "B" power station will be commissioned in 1974. Due to the slower rate of expansion of coal mining operations in the Bowen Basin the commissioning date of the second 60MW set was deferred. The option to purchase the set under existing contracts was allowed to lapse. It is now anticipated that the second 60MW set will be commissioned in 1978.

In the Southern-Central interconnected system the final 120MW set in Swanbank "B" station on the West Moreton coalfields will be commissioned in 1973. It will be followed by four 275MW sets due for commissioning in the Gladstone Power Station in the period 1975 to 1977. Subject to variations which may be brought about by the timing and occurrence of major industrial loads, for which there is flexibility in the present plant installation programme, it is expected that this development plan will meet the demands on the Southern-Central interconnected system until 1979.

A decision on the size and location of the next major power station, which will follow Gladstone Station, will be required by mid 1973. This would allow sufficient time to commission the new station by 1979.

The size and location of this new station will be determined after detailed technical and economic investigations. The purpose of these investigations will be to establish the most favourable development, in terms of the cost of electricity delivered to consumers.

The Commission, after close consultation with the Queensland Coal Board, has called tenders for the supply of coal for this power station. The purpose of calling tenders is to ensure that the prices actually paid for coal when power production begins (after allowing for reasonable escalation), is close to those upon which the decision was made to use a particular source of coal. It is also important to ensure that there will be a reliable and economic supply of coal available for the life span of the power station.

The analysis of the tenders will be part of the much larger exercise to determine the size and location of the power station. It is intended that the recommendation to the Government to build the power station will also include a recommendation regarding the acceptance of a tender or tenders for the supply of coal for that power station.

Completion of the planned developments will see the establishment of a major extra-high voltage transmission grid in the Southern-Central interconnected system. Large scale extension of this grid, possibly at a voltage higher than 275kV, may be necessary to further develop the low cost coal reserves in Queensland. Transport of coal by railway provides a practicable alternative to this in many cases. The Railways Department is investigating several proposals on the Commission's behalf.

Adequate supplies of cooling water are also vital to the location of thermal power stations. The availability of water at a number of possible inland power station sites is being investigated by the Irrigation and Water Supply Commission on the Commission's behalf.

The proposed Wivenhoe Dam in the Brisbane River valley offers scope for the development of a large pumped storage hydro-electric scheme for commissioning in the early 1980's. The Commission, in collaboration with other Government Departments, is investigating the feasibility and cost of constructing this scheme. Should it prove economic, it would provide about 500MW of peak load generating capacity.

4. SYSTEM DEVELOPMENT

(a) SOUTHERN QUEENSLAND

The region covers the areas of supply of The Southern Electric Authority of Queensland, the Wide Bay-Burnett Regional Electricity Board, the Brisbane City Council and the Dalby Town Council.

Power stations are operated by The Southern Electric Authority and the Wide Bay–Burnett Regional Electricity Board and the transmission systems of these two authorities are interconnected. The Brisbane City Council and the Dalby Town Council buy electricity in bulk from the Southern Electric Authority for distribution within their respective areas. In addition, the Department of Water Supply and Sewerage of the Brisbane City Council operates a small hydro station at Somerset Dam which is connected directly to the transmission system of the Southern Electric Authority.

Expenditure on electrical development within the combined area during the year was—

	$
Generation	11,797,772
*Main Transmission	7,706,455
Distribution	12,947,514
Miscellaneous	3,812,774
Total	$36,264,515

* Excludes South Pine/Gladstone Transmission Line.

Generation

Units generated for the year totalled 4,420·6 million—an increase of 7·5 per cent. Details of production are as follows:—

Station	Production	
	1970–71	1971–72
	kWh (Millions)	kWh (Millions)
Swanbank "A"	2,373·0	2,269·1
Swanbank "B"	670·4	1,493·7
Swanbank "C"	1·1	0·6
Middle Ridge	2·8	1·6
Tennyson "A"	130·3	49·2
Tennyson "B"	327·4	212·0
Bulimba "A"	·9	..
Bulimba "B"	442·4	236·6
New Farm	1·0	..
*Somerset Dam (Purchases)	14·2	12·9
Sub-total—Southern Electric Authority	3,963·5	4,275·7
Wide Bay–Burnett R.E.B.	..	..
†Howard	148·0	144·9
Total	4,111·5	4,420·6

* A hydro-electric station operated by the Brisbane City Council Departmen of Water Supply and Sewerage which sells in bulk to the Authority.

† Operated by Wide Bay–Burnett Regional Electricity Board.

The third 120MW set at Swanbank "B" was commissioned during the year. The commissioning of the fourth and final 120MW machine at this station is scheduled prior to the winter of 1973.

Power station capacities and demands on the interconnected system during the year were as follows:—

Station	Installed Capacity	Effective Capacity	Maximum Demand		
			1970–71	1971–72	Percentage Increase
	MW	MW	MW	MW	
Swanbank "A"	396·0				
Swanbank "B"	360·0				
Swanbank "C"	30·0				
Middle Ridge	60·0				
Tennyson "A"	120·0	1,248·5	979·0*	1,037·6*	6·0
Tennyson "B"	120·0				
Bulimba "A"	65·0				
Bulimba "B"	180·0				
Howard	37·5				
	1,368·5				

* S.E.A. system maximum demand, excluding exports to The Wide Bay–Burnett Regional Electricity Board, plus The Wide Bay–Burnett Regional Electricity Board system maximum demand, assumed to be simultaneous.

Transmission and Distribution

A further 1,050 miles of transmission and distribution lines were erected during the year, and supply was extended to 15,573 additional consumers.

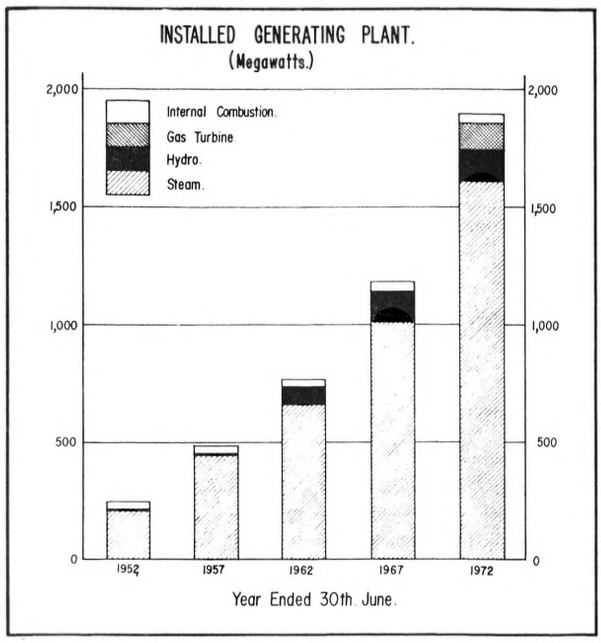
Work has continued on the further development of the 275kV, 132 kV, 110kV and 66kV main and sub transmission systems throughout the interconnected area, with the establishment of new substations and additions to existing works. Good progress has been maintained on the new 110kV substation at Victoria Park in the city area, a major bulk supply point for the Brisbane City Council.

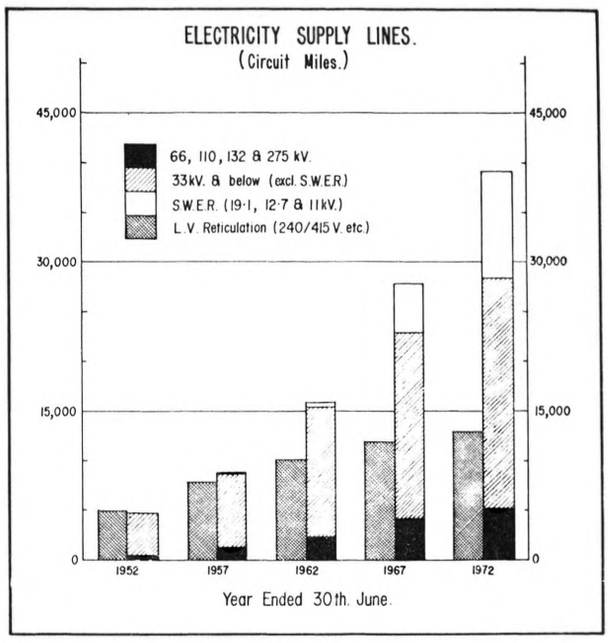
Further details of Southern Queensland development are in Appendices IV to VII on pages to of this report.

(b) CENTRAL QUEENSLAND

The Capricornia Regional Electricity Board is the supply authority for this area. Total expenditure on the electrical development of the region during the past year was as follows:—

	$
Generation	83,615
Main Transmission	1,339,687
Distribution	2,037,643
Miscellaneous	399,156
Total	$3,860,101





A total of 912·3 million units were generated during the year, an increase of 16·3 per cent on the previous year's figure, as follows:—

Station	Production	
	1970–71	1971–72
	kWh (Millions)	kWh (Millions)
Callide	744·6	850·4
Rockhampton (Steam)	39·7	61·5
Rockhampton (Gas Turbine)	0·2	0·3
*Others	0·1	0·1
Total	784·6	912·3

* Small internal combustion plant as standby stations only.

Generation

No additional generating plant was commissioned during the year. Further details of generation works in the area are in Section "C" Gladstone Power Station Project.

Power Station capacities and demands on the system were as follows:—

Station	Installed Capacity	Effective Capacity	Maximum Demand		
			1970–71	1971–72	Percentage Increase
	MW	MW	MW	MW	
Callide	120·0	170·7	144·4	151·8	5·1
Rockhampton (Steam) ..	52·5				
Rockhampton (Gas Turbine) ..	25·0				
Others	3·2				
	200·7				

Transmission and Distribution

A further 654 miles of transmission and distribution lines were constructed and placed in service during the year and 1,631 new consumers were connected within the area of supply.

Major works have been associated with the Planning and Development of the system for interconnection with the Southern Queensland System scheduled for completion at the end of 1972. Other works have been associated with the development of coal mining areas and the extension of the various rural electrification schemes.

Further details of Central Queensland development are in Appendix VIII on pages 37 to 43 of this report.

(c) GLADSTONE POWER STATION PROJECT

The Commission is the constructing authority for the Gladstone Power Station. The Southern Electric Authority of Queensland is acting as engineering and supervising consultant. This power station will meet the base load requirements of central and southern Queensland as well as meeting the anticipated heavy industrial demands in the Gladstone area.

Site works on the Gladstone Power Station construction are now beginning to rise to a high level of activity and currently more than 250 men are engaged on site.

Over three million cubic yards of earth and rock have already been removed from the site and nearly six miles of bunds have been constructed around the mud flats to enclose the ash reclamation areas. On the Power Station site area itself, an area of mud flats had already been reclaimed for the coal storage area where ¾ million tons of coal will eventually be stockpiled.

The general area of the Power Station has been substantially levelled. Concrete foundations are being poured at the rate of approximately 1,000 cubic yards per week. All told more than 70,000 cubic yards of concrete will be poured.

The roads on the site of the Power Station are well advanced, even though movement was handicapped during the year by the considerable wet weather.

The main boiler contractor has moved on to the site. The erection of the main structural steel for the turbine room and the main boiler house commenced in August, 1972.

Following discussions with local authorities, land has been procured for the establishment of a 200-man single workers hostel on the Dawson Highway in the Calliope Shire. This hostel should be available for occupancy late in 1972. Considerable attention is being given to the standard of the accommodation and the appearance and facilities of the hostel.

Up to the end of June, contracts valued at nearly $100 million had been let for the power station plant. These include the following:—

	$
Boiler Plant	39,151,935
Turbo Generators	19,239,578
Earthworks and Drainage	3,300,506
Structural Steel	1,246,289
Condensing and Feed Heating Plant ..	8,896,658
Coal Handling Plant	6,518,129
Transformers	3,206,350
Electrostatic Precipitators	4,655,104
Ash and Dust Plant	2,481,113
Boiler Feed Pumps	1,764,722
Water Treatment Plant	1,878,345
Main Foundations	4,462,985

Site work will now increase in tempo, and it is anticipated that a total workforce of about 950 workers will be engaged in 1973. This will help the general employment position in Queensland following the reduction of other main construction work in the Gladstone area.

During the 1971-72 financial year, expenditure on the project exceeded $5 million. In this current financial year it is anticipated that expenditure will increase to more than $24.5 million. The overall cost of the project has been affected by the general cost increases in recent years. The current estimate for the Power Station Project has been increased from the 1968 figure of $155 million to nearly $171 million on 1972 values.

Considerable attention has been given to the environmental aspects associated with the Gladstone Power Station. Capital expenditure of more than $10 million is included in the cost of the Power Station on works directly associated with environmental control.

The sales of electricity by the above western Queensland undertakings during the year ended 30th June, 1972, totalled 118,900,000 units compared with 107,000,000 units in 1970-71, an increase of 11·1 per cent.

Generation

The total installed generating capacity in western Queensland areas is approximately 28,000kW. The production from electric authority owned and operated power stations in the Central Western Region, the area of the Roma Electric Authority and isolated stations operated by local auhtorities was 48,669,800 units. Units purchased from Mount Isa Mines Limited by the North Western Electric Authority for its main system totalled 59,564,135. Purchases by the Balonne Shire Council, from the Electricity Commission of New South Wales, totalled 10,397,040 units.

Transmission

A total of 472 miles of transmission and distribution lines was erected during the year.

(i) THE CENTRAL WESTERN REGIONAL ELECTRICITY BOARD

The Central Western Region includes the areas of the Shires of Aramac, Barcaldine, Blackall, Ilfracombe, Isisford, Jericho, Longreach and Tambo. Capital expenditure on electrical development within the Region for the past year was as follows:—

	$
Generation	66,068
Transmission and Distribution	109,217
Miscellaneous	9,543
Total	$184,828

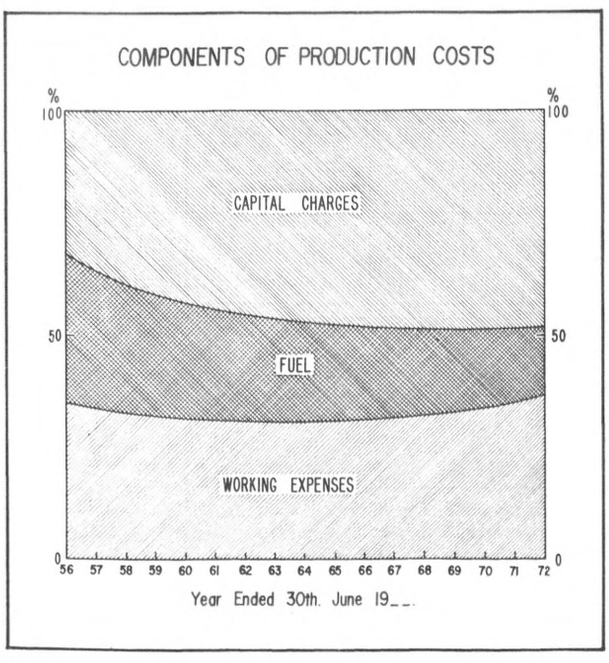
Generation

A total of 14,826,475 units were generated during 1971–72. Details are as follows:—

Station	Production kWh	
	1970–71	1971–72
Longreach	7,336,664	7,214,901
Barcaldine	7,267,014	7,598,563
*Blackall		
*Alpha		
*Jericho	25,694	13,011
*Tambo		
*Muttaburra		
Total	14,629,372	14,826,475

* These stations are only used on a stand-by basis and the centres are supplied by transmission from Barcaldine.

At the 30th June, 1972, the total installed capacity of the two main generating stations was 8,275kW. This capacity was adequate to meet the maximum demand of the system which was 1,800kW at Longreach and 1,910kW at Barcaldine.



Transmission and Distribution

The Central Western Region Electricity Board's programme of rural electricity supply development has been restricted largely due to factors related to the rural economy. However, the Board is endeavouring to continue with rural electricity development and a new scheme to extend supply to properties in the Jericho Shire is programmed for the immediate future.

Future Development

During the year the maximum demand of the total system remained virtually stationary, reflecting the present situation of the rural economy. The proposal to interconnect Longreach and Barcaldine is therefore in abeyance at present.

However, consideration is still being given to the future development and organisation of the Central Western Region, and its possible amalgamation with the Capricornia Regional Electricity Board, to achieve the objectives of determining when and by what means improved conditions of supply can be brought to the area.

For further details of developments in the Central Western Regional Electricity Board area of supply refer Appendix XII on pages 61 to 64 of this report.

(ii) ROMA ELECTRIC AUTHORITY

The Roma Electric Authority, operated by the Roma Town Council, supplies the Town of Roma and the Shires of Bendemere, Booringa, Bungil and Warroo. Local natural gas and distillate oil is used to operate the Roma Power Station plant.

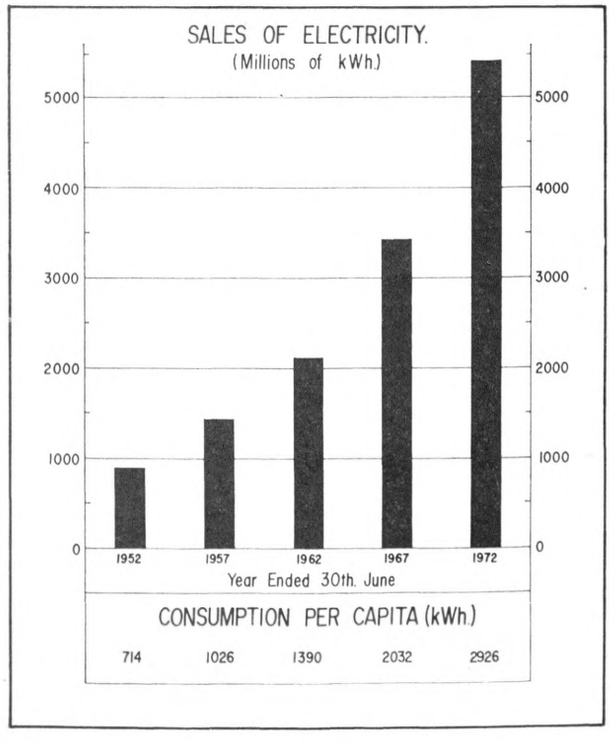
During the year, the average monthly consumption of natural gas at the power station was approximately 14,291,600 cubic feet and this fuel, supplemented by distillate, was used to generate 21,031,670 units of electricity.

The total installed capacity of all the Roma Power Station plant is 10,945kW, and the maximum demand during the year was 5,600kW.

This demand on the system represented an increase of 0·5 per cent on the previous year's figures. A second 2,150kW dual-fuel generating set was commissioned on 27th May, 1972 to secure the system generating capacity and to provide for continued increase in the maximum demand.

The rural electrification programme of the Authority continued at a steady rate during the year, although again hindered by adverse weather conditions.

The scheme for the rural electrification of the Roma Injune area of the Bungil Shire was completed with a total of 164 rural consumers in that area now receiving electricity supply.



During the year, the scheme for the rural electrification of the Muckadilla–Mitchell portion of the Booringa Shire was completed. This development resulted in supply being connected to 36 rural properties.

The Authority has offered electricity supply to a further 60 consumers in the Warroo Shire. Subject to satisfactory consumer response, rural electrification of this Shire will be complete at the end of this project.

Consideration is at present being given by the Council of a scheme to extend supply to a further 130 rural properties in the remainder of the Booringa Shire.

Following the extension of 33kV supply to the quarry installation, supply to the Amby township was upgraded from 22kV to 33kV. The 22kV system now supplies only a few rural consumers near Mitchell.

Electricity supply has been provided to the Australian Post Office microwave repeater stations at Roma, Wallumbilla and Yuleba which is part of the Australian Post Office scheme to bring television to country viewers.

(iii) NORTH WESTERN ELECTRIC AUTHORITY

The North Western Electric Authority is operated by the Mount Isa City Council and is responsible for electricity supply in Mount Isa, Cloncurry and Camooweal.

By agreement the authority purchases power in bulk from Mount Isa Mines Limited for distribution in Mount Isa and for transmission, by a 66kV line, to Cloncurry. The agreement between M.I.M. and the Mount Isa Council was renewed on 26th June, 1972. During the year a total of 59,564,135 units were purchased by the Authority from Mount Isa Mines Limited.

The township at Camooweal is supplied by a small local generating station with an installed capacity 214kW. A total of 337,242 units were generated at this station during the year.

The reticulation was extended during the year to supply 995 new consumers in Mount Isa.

A new housing estate at Healy is being constructed by Mount Isa Mines Limited and during the year 900kVA of distribution transformers were installed. Continuous work is in progress by the North Western Electric Authority to maintain a system of distribution capable of giving a continuous and efficient supply to this rapidly expanding centre.

At 30th June, 1972, there were 7,776 consumers in the area of supply, including 7,146 in Mount Isa.

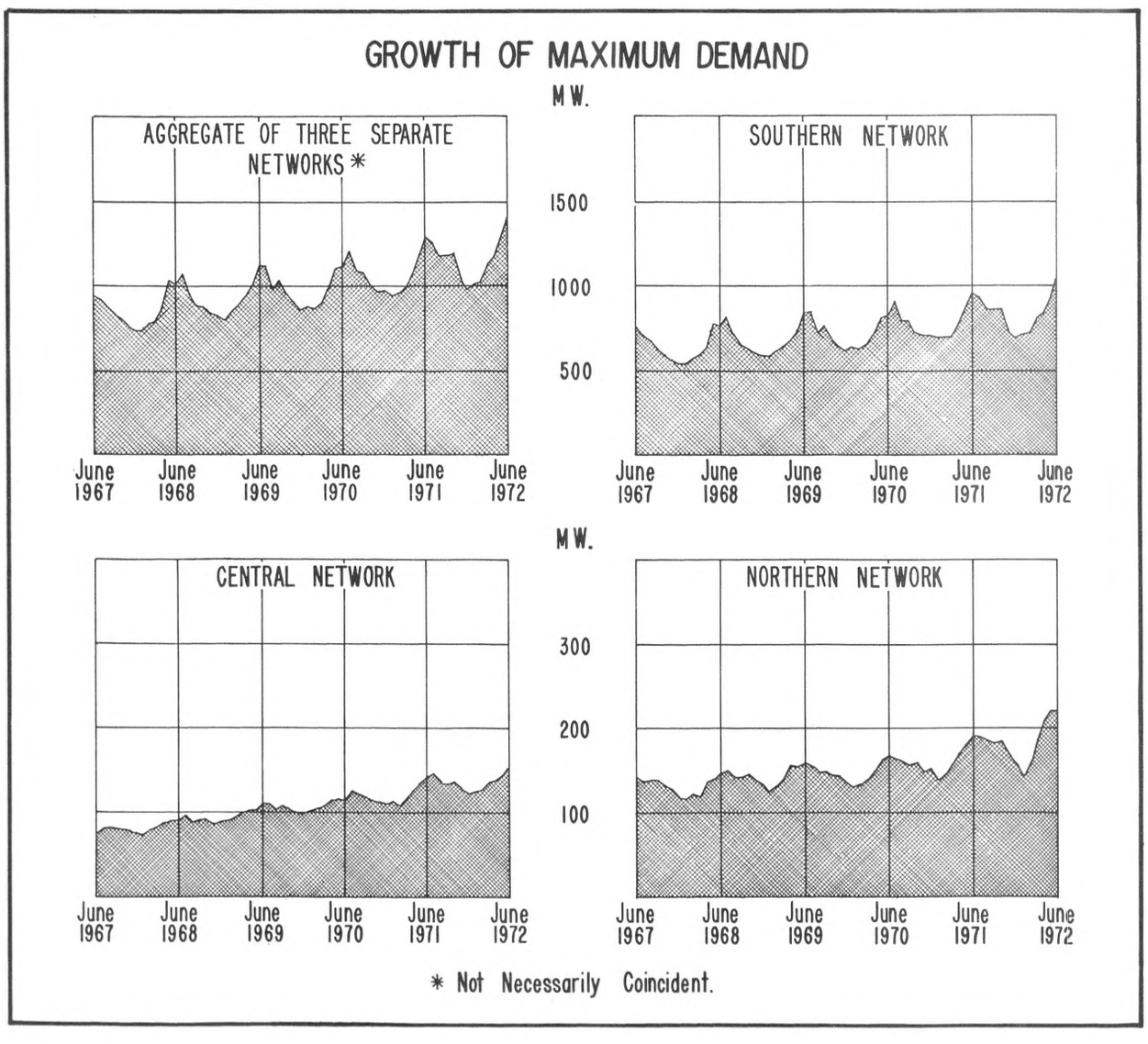
(iv) NORTH WEST COUNTY COUNCIL

Under a special franchise agreement with the Commission, the North West County Council (Inverell, New South Wales) operates as an Electric Authority in Queensland in the Shires of Waggamba and Inglewood and the Town of Goondiwindi.

The Council's high voltage system in New South Wales feeds into a 33kV transmission network supplying consumers in the Towns of Goondiwindi, Inglewood, Talwood, Texas and Yelarbon, and also 658 rural consumers within the franchise area.

Rural electricity supply development in the Waggamba and Inglewood Shires proceeded during the year and 123 additional properties were connected.

Close collaboration has been maintained with the County Council in this development through the Electricity Liaison Committee which comprises representatives from the Waggamba and Inglewood Shire Councils, Goondiwindi Town Council, North West County Council and the Commission.



(v) LOCAL AUTHORITY ELECTRICITY UNDERTAKINGS

This section includes other electricity undertakings in Western Queensland operated by Local Authorities.

Brief notes on each of the undertakings follow:—

Birdsville (Operated by the Diamantina Shire Council)

The 8kW generating set, driven by water pressure from the town's artesian bore, maintained a generally satisfactory supply during the year.

However, on one occasion the alternator failed in service resulting in an extended interruption to supply.

Maintenance was carried out on the water turbine and the 8kW diesel engine standby plant and both are now operating satisfactorily.

Bedourie (Operated by the Diamantina Shire Council)

This undertaking, which has an installed capacity of 20kW of diesel plant, throughout the year provided a satisfactory supply of electricity to the 16 consumers of this far Western Queensland town.

Boulia (Operated by the Boulia Shire Council)

The two Ruston generating units were retired and a 70kW Caterpillar set installed and commissioned on the 27th June.

The Caterpillar set has been installed to supplement the 80kW capacity of the National sets and to secure supply to the township of Boulia and a number of adjoining rural properties.

Charleville (Operated by the Murweh Shire Council)

Under the control of the Murweh Shire Council, the Charleville power station supplies the townships of Charleville, Augathella and Morven. During the year, a satisfactory supply was maintained with the installed capacity of 3,417kW.

Some rural consumers in the Augathella area are also supplied and a scheme for electrification of the remaining areas of the Shire has been considered. As part of that scheme tenders have been called for the extension of supply to 10 rural consumers in the Morven area. These should be energised early in 1973.

Cunnamulla (Operated by the Paroo Shire Council)

Under the control of the Paroo Shire Council, the diesel power station at Cunnamulla continued to operate satisfactorily. The station has an installed capacity of 1,840kW and maintained supply for Cunnamulla and also Wyandra which receives supply from a 22kV transmission line between the two towns. Four rural consumers are supplied from this line.

In April, 1972, a S.W.E.R. extension to provide supply to eleven rural consumers in the Cunnamulla–Wyandra area was energised.

Jundah (Operated by the Barcoo Shire Council)

Although some plant and staffing difficulties were experienced, this undertaking maintained a satisfactory service throughout the year.

A scheme to provide 240-415V electricity supply to Windorah township was completed in September, 1972. Power will also be made available for the town water supply and local airport.

Quilpie (Operated by the Quilpie Shire Council)

This undertaking was commissioned in 1952 with an installed capacity of 64kW and was the first of the small Western Queensland electricity schemes.

Additional plant has been installed progressively over the years to bring the present capacity to 355kW of diesel plant and an 8kW hydro set.

A satisfactory supply has been maintained throughout the year.

St. George (Operated by the Balonne Shire Council)

The Balonne Shire Council buys electricity in bulk from the State Electricity Commission of New South Wales at Mungindi, transmitted by 33kV lines to St. George, Thallon, Dirranbandi, and Bollon. A total of 10,397,040 units were purchased during the year.

Construction is proceeding with the erection of a duplicate 33kV line between Mungindi and St. George. This work is part of general system augmentation and associated with it is the construction of a 33kV switching and regulator station at Thallon where a 5,000kVA regulator is to be installed. Completion of this work is programmed for early 1973.

The Thallon regulator will supplement 1,500kVA and 3,000kVA regulators installed during the year, at Dirranbandi and south of St. George respectively, to maintain satisfactory voltage conditions during peak demand periods.

The Authority is proceeding with an extension to a further 12 properties in the southern portion of the Booringa Shire.

Three tracked vehicles were purchased by the Council and proved their worth during the year in maintaining supply to flooded and otherwise inaccessible areas.

Tenterfield Municipality

The Tenterfield Municipal Council, under franchise agreement with the Commission, supplies electricity from New South Wales to the township of Wallangarra and adjacent areas. A satisfactory supply of electricity is being maintained.

Thargomindah (Operated by the Bulloo Shire Council)

A satisfactory supply was maintained during the year. The installed capacity of the Thargomindah Power Station is 88kW.

5. ELECTRICITY UTILIZATION AND MARKETING

The need to improve the utilization and marketing of electricity in the State has been recognised by the whole electrical industry for some time.

An example of this awareness was the formation of the Electrical Development Association of Queensland in 1970.

In May, 1972, the Association organised the Third South Pacific Electrical Convention. It brought to Queensland personalities of world renown. They spoke at the Convention on a variety of subjects, including marketing and environmental control.

To pursue its marketing activities more effectively, the Southern Electric Authority of Queensland created a new Marketing Group.

The Regional Electricity Board's Electricity, Utilization and Marketing Committee is broadening its activities in market research. Three panels have been established: they will study market and motivation research, technical research and promotion design. The information which will be obtained will be used for more effective marketing.

6. THE ELECTRICITY SUPPLY ASSOCIATION OF AUSTRALIA

Association membership extends to all Australian States, the Territory of Papua–New Guinea and the British Solomon Islands.

The biennial conferences of three of the five sections of the Association were held during the period under review.

The Commission was represented at each conference.

Eighty-three delegates, representing 62 member Authorities, attended the Conference of Section No. 1—Generation. The conference dealt with 150 agenda items and 11 seminar topics covering a wide range of matters pertaining to electrical, mechanical, chemical and environmental aspects of power stations.

Eighty-three delegates, representing 62 member Authorities, attended the Conference of Section 2—Transmission and Distribution. The conference dealt with 47 agenda items covering overhead and underground transmission and distribution systems, substations, plant and equipment.

Thirty-two delegates, representing 19 member Authorities, attended the Conference of Section 5—Personnel and Welfare. Conference dealt with 49 Agenda items and four seminar topics covering personnel practices, training, welfare and safety.

The Commission's 1971 report referred to the formation of a joint Metric Conversion Board—Association Metrication Committee. This Committee has completed its basic task of preparing a co-ordinated metric conversion programme for the electricity supply industry. The programme has been approved for implementation by the Board and the Association and has been formally approved by the Minister for Education and Science.

The Committee has established liaison with the Standards Association of Australia for the production of appropriate metric standards and with the various committees working on the metrication of the Association's codes of practice. This is required for the staged implementation of the conversion programme.

The Association is about to publish a manual of metric work for use by its members.

The Asociation has reviewed the adequacy of its machinery to handle the total environmental problem and has set up a top level exploratory committee, comprising representatives from all States of Australia, to advise the Association on this matter.

The Electricity Supply Association of Australia continues to play a very important role in the electricity supply industry throughout Australia.

7. REGIONAL ELECTRIC AUTHORITIES CONFERENCE

The 26th Annual Conference of Regional Electric Authorities, held in Brisbane from April 10 to 13, dealt with a wide range of subjects vital to the electricity supply industry and to the consumers.

All major electric authorities in the State were represented at the conference.

The meeting was held at the new Brisbane City Council Department of Electricity building, Victoria Park.

8. INSPECTORIAL ACTIVITIES

(a) GENERAL

During the year, inspections were carried out in all the areas of Queensland electric authorities. Again, special attention was given to safe working procedures and to the use of safety equipment.

Inspections were also carried out in new licence areas involving mines. This has necessitated close liaison between mine owners, the Mines Department and the Commission.

Generally, the results of the inspections have been satisfactory, both with respect to electric works and to consumers' installations.

Electric Inspectors of the Commission also carried out inspections as required under The Electrical Workers and Contractors Act.

The Inspectorial Branch has continued to represent the Commission on interstate committees of the Standards Association of Australia and the Electricity Supply Association of Australia.

(b) ACCIDENTS

(i) Electrical

The following table compares accident figures for the past year with the average over the preceding five-year period 1966–1971:—

Classification	5-Year Average	1971–72
Fatal	13	26
Non-Fatal	293	350
Total	306	376

Despite intensive safety campaigns by the Queensland Electrical Education Council and the Electrical Industry Safety Advisory Committee, a total of 376 electrical accidents were reported to the Commission during the year. Of these, 26 were fatal.

While the slight reduction in the total number of accidents is encouraging when compared with the previous year, the steep increase in fatalities from 18 to 26 causes serious concern.

There were 27 accidents involving employees of electric authorities. Of these two were fatal. This compares with 31 in the previous year, of which none were fatal.

There were 20 accidents involving electrical workers elsewhere, of which none were fatal, compared with 20 in the previous year with two fatalities.

It will be seen that most of the increase in the number of fatalities affected the general public.

A detailed analysis of the electrical accidents listed in Appendix 1 shows that lack of maintenance of electrical installations and unauthorised, or amateur, work are still the major problems, despite the intensive publicity undertaken in these fields.

The last two years have produced a significant change in the pattern of electrical fatalities.

In the period 1961-62 to 1969-70 there was a total of 20 deaths due to unauthorised or amateur electrical work, giving an average of 2·5 per year with a maximum of four in any one year.

In 1970-71 and 1971-72 there were a total of twenty deaths from the same cause—an average of ten yer year. Virtually all of these accidents involve the connection of flexible cords.

Comparing the same periods, from 1961-62 to 1969-70 fatalities due to contact with overhead conductors totalled 34 (average 4·25 per year) with a maximum of seven in any one year. In both 1970-71 and 1971-72 there were six deaths from this cause.

Over the entire period 1961-1972 fatalities from all other causes totalled 53, an average of 5·3 per year and there has been no substantial variation in the past two years.

The number of accidents involving power lines remained fairly constant and the number of fatalities remained the same. Six persons died as a result of contact with overhead lines. Safety publicity in this field is being continued and new pamphlets are being produced, stressing the danger in regard to irrigation pipes, etc. These fatalities resulted from contact with overhead mains by irrigation pipes, (1); cranes (2); length of guttering, (1); fallen wires, (1); and aerial stay, (1).

Two electrical workers received fatal injuries while working in substations. One climbed onto an energised oil circuit breaker and the other contacted an open circuited earthing lead while carrying out testing.

The two fatalities due to fixed wiring and equipment would have been prevented by an inspection of the premises by a qualified electrician.

Fatalities involving appliances, handlamps and tools increased substantially over the last year and were responsible for twelve deaths, compared with five last year. It should be noted that seven of these are included in the number of fatalities due to unauthorised interference.

The electrical safety campaign was continued in secondary schools during the year and the programme has been well received.

(ii) Mechanical

The number of mechanical accidents on electric authorities' works dropped to 15. But there were two fatalities compared with one in the previous year.

(c) SAFETY EDUCATION AND PUBLICITY

(i) Electrical Industry Safety Advisory Committee

The sub-committees have again been very active during the past year.

The Sub-committee on Working Procedures finalised submissions for safety equipment and safe working procedures. These were accepted by the Commission and have now been implemented. Most significant were extensive amendments to the Safety Guides, and amendments to the Code For Safety Equipment For Work on Overhead Electric Lines.

The preparation of Safety Bulletins continued throughout the year. One was devoted to a message from the retiring Chairman of the Committee, Mr. Neil Smith. It set out the history and development of the Committee and its sub-committees.

The Working Procedures Sub-committee is currently involved in the investigation of flash-burn accidents from high fault currents and has sought information from overseas sources. Recommendations will be forthcoming in this matter.

A special Panel of this group has recently been formed to investigate safety procedures for work on self-supporting steel towers.

Linesman training has been kept under review by the Linesmen's Training Sub-committee. The number of candidates studying the correspondence course continues to be adequate for the needs of the industry.

At the Linesmen's Training School, courses for linesmen and supervisors were held. A further course entitled "The Practising Linesman" will start late in 1972 and will continue in 1973. Forty-nine new linesmen have graduated from the School since 1st July, 1971.

A special Panel of this Sub-committee has also been constituted to review the training school syllabus and to align more closely the correspondence course to the practical training at the school. It will also evaluate the practical techniques being taught at the school.

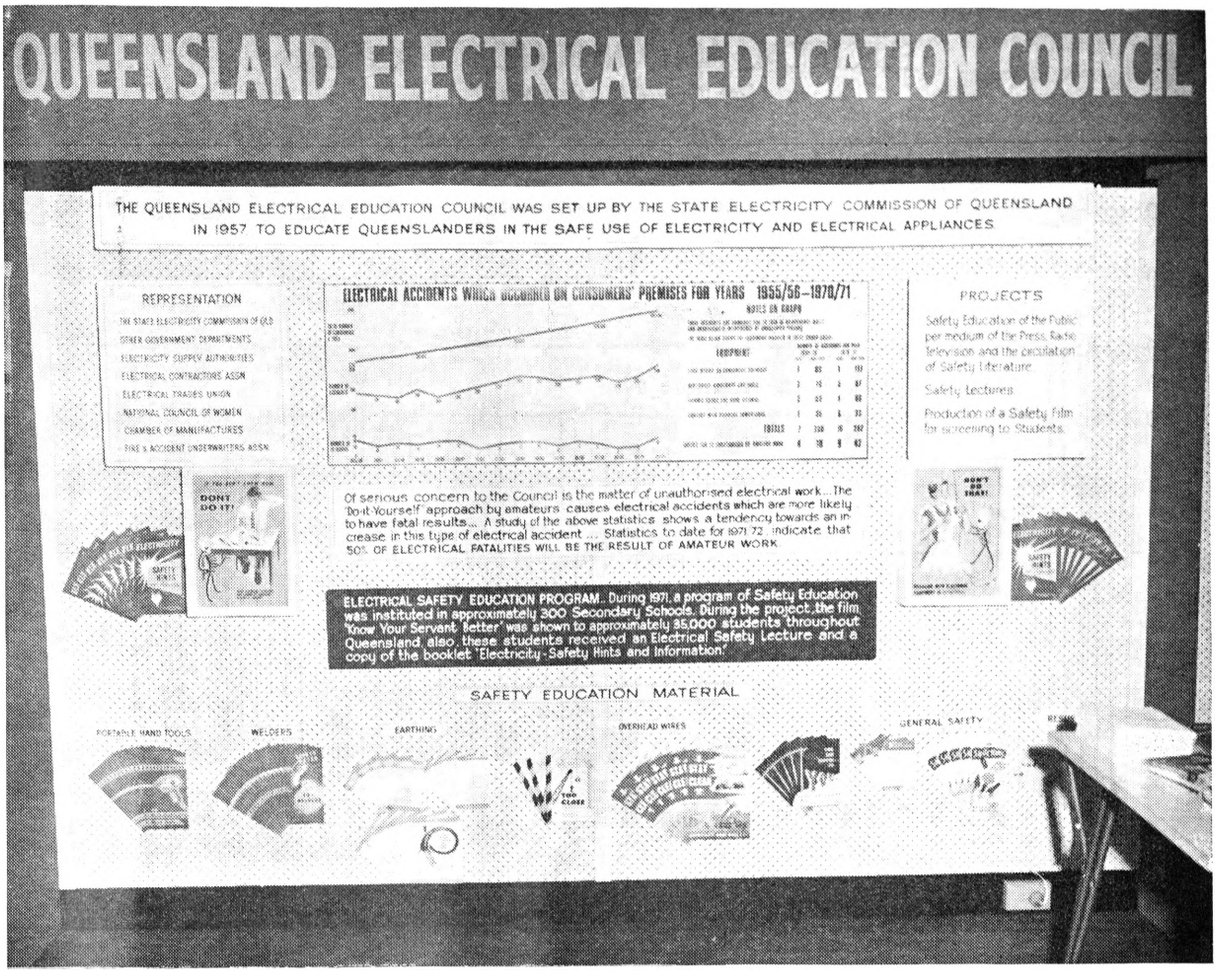
The Resuscitation Sub-committee has reviewed the present teaching on the subject and prepared a draft of a booklet which will be produced by the Commission in the near future. The text has been approved by the Director-General of Health and Medical Services.

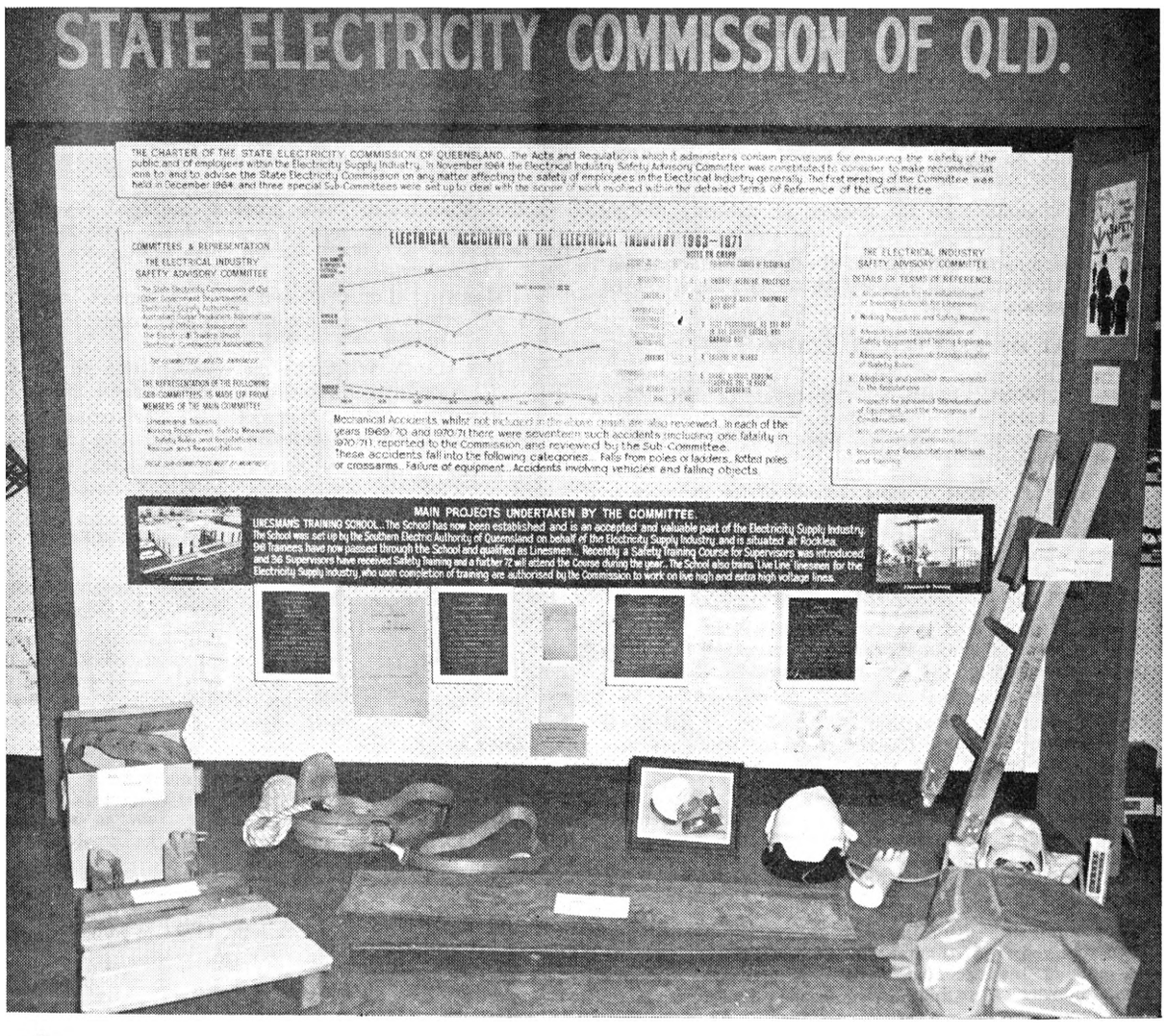
On behalf of the Committee the Commission entered a display in the Queensland Occupational Safety Convention at Festival Hall. A photograph of this display is shown on page 11.

The Commission again records its appreciation of the time and effort devoted to this work by the members of the Committee. Thanks are also expressed to the organisations which have made their officers available for the work of the Committee and its various Sub-committees and Panels.

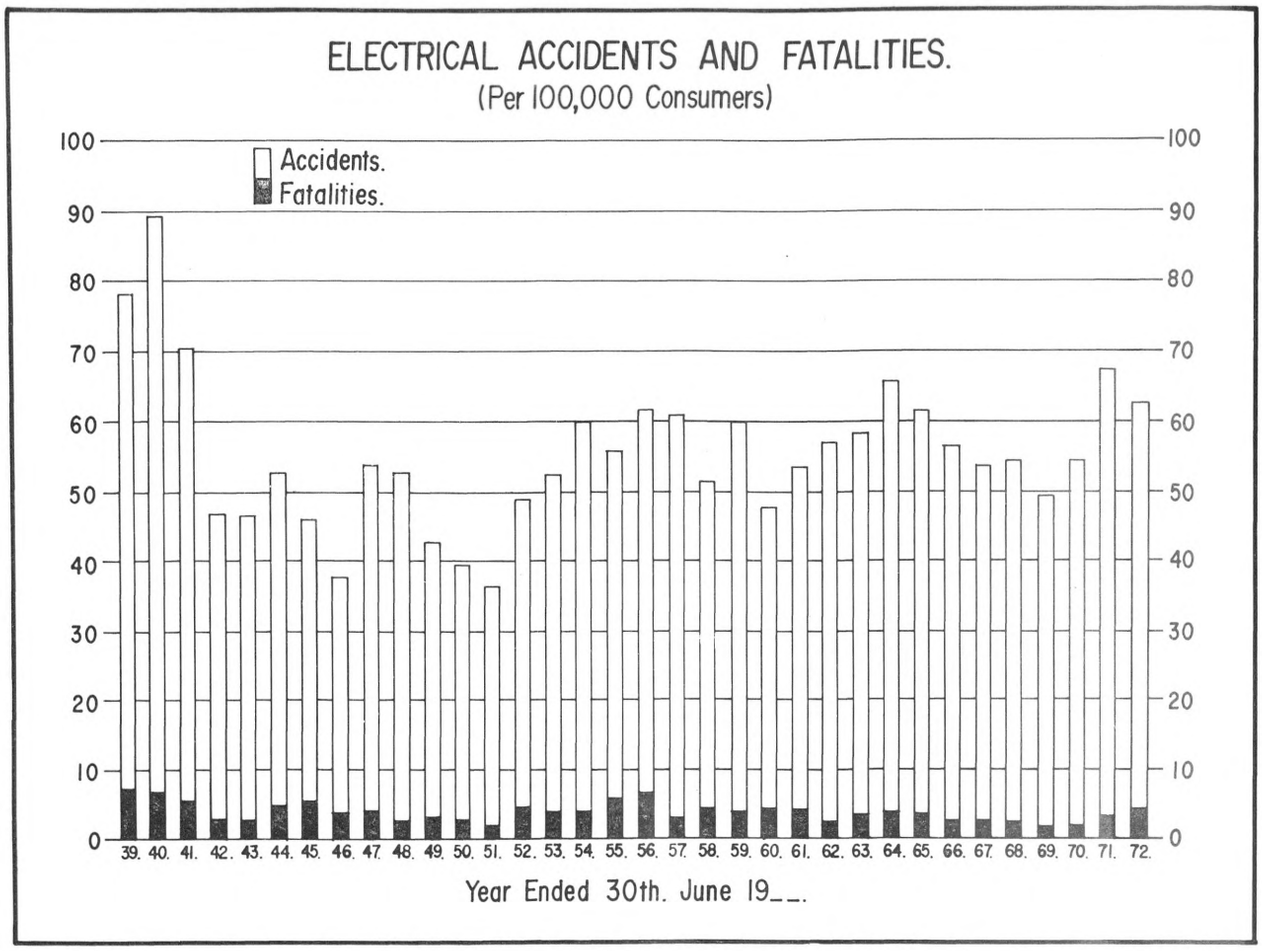
(ii) Queensland Electrical Education Council

During the past year, the Council has continued with its educational work. The first year of the safety campaign in secondary schools was satisfactorily completed in 1971 and the second year is well under way. Between 35,000 and 40,000 students are involved each year. In this way the Council hopes to educate the next generation of Queenslanders


QUEENSLAND ELECTRICAL EDUCATION COUNCIL
THE QUEENSLAND ELECTRICAL EDUCATION COUNCIL WAS SET UP BY THE STATE ELECTRICITY COMMISSION OF QUEENSLAND IN 1957 TO EDUCATE QUEENSLANDERS IN THE SAFE USE OF ELECTRICITY AND ELECTRICAL APPLIANCES
REPRESENTATION
THE STATE ELECTRICITY COMMISSION OF QLD
OTHER GOVERNMENT DEPARTMENTS
ELECTRICITY SUPPLY AUTHORITIES
ELECTRICAL CONTRACTORS ASSN
ELECTRICAL TRADES UNION
NATIONAL COUNCIL OF WOMEN
CHAMBER OF MANUFACTURERS
FIRE & ACCIDENT UNDERWRITERS ASSN
ELECTRICAL ACCIDENTS WHICH OCCURRED ON CONSUMERS' PREMISES FOR YEARS 1955/56–1970/71
PROJECTS
Safety Education of the Public per medium of the Press, Radio, Television and the circulation of Safety Literature
Safety Lectures
Production of a Safety Film for screening to Students.
DON'T DO IT!
DON'T DO THAT!
Of serious concern to the Council is the matter of unauthorised electrical work... The 'Do-it-Yourself' approach by amateurs causes electrical accidents which are more likely to have fatal results.... A study of the above statistics shows a tendency towards an increase in this type of electrical accident ... Statistics to date for 1971-72 indicate that 50% OF ELECTRICAL FATALITIES WILL BE THE RESULT OF AMATEUR WORK.
ELECTRICAL SAFETY EDUCATION PROGRAM... During 1971, a program of Safety Education was instituted in approximately 300 Secondary Schools. During the project, the film 'Know Your Servant Better' was shown to approximately 35,000 students throughout Queensland, also, these students received an Electrical Safety Lecture and a copy of the booklet 'Electricity - Safety Hints and Information.'
SAFETY EDUCATION MATERIAL
PORTABLE HAND TOOLS
WELDERS
EARTHING
OVERHEAD WIRES
GENERAL SAFETY


STATE ELECTRICITY COMMISSION OF QLD.
THE CHARTER OF THE STATE ELECTRICITY COMMISSION OF QUEENSLAND... The Acts and Regulations which it administers contain provisions for ensuring the safety of the public and of employees within the Electricity Supply Industry. In November 1964 the Electrical Industry Safety Advisory Committee was constituted to consider, to make recommendations to, and to advise the State Electricity Commission on any matter affecting the safety of employees in the Electrical Industry generally. The first meeting of the Committee was held in December 1964, and three special Sub-Committees were set up to deal with the scope of work involved within the detailed Terms of Reference of the Committee.
COMMITTEES & REPRESENTATION
THE ELECTRICAL INDUSTRY SAFETY ADVISORY COMMITTEE
ELECTRICAL ACCIDENTS IN THE ELECTRICAL INDUSTRY 1963–1971
THE ELECTRICAL INDUSTRY SAFETY ADVISORY COMMITTEE
DETAILS OF TERMS OF REFERENCE
Mechanical Accidents, whilst not included in the above graph are also reviewed. In each of the years 1969-70 and 1970-71 there were seventeen such accidents (including one fatality in 1970-71) reported to the Commission, and reviewed by the Sub-Committee. These accidents fall into the following categories... Falls from poles or ladders, Rotted poles or crossarms... Failure of equipment... Accidents involving vehicles and falling objects.
MAIN PROJECTS UNDERTAKEN BY THE COMMITTEE.
LINESMANS TRAINING SCHOOL... The School has now been established and is an accepted and valuable part of the Electricity Supply Industry. The School was set up by the Southern Electric Authority of Queensland on behalf of the Electricity Supply Industry, and is situated at Rocklea. 98 Trainees have now passed through the School and qualified as Linesmen... Recently a Safety Training Course for Supervisors was introduced and 56 Supervisors have received Safety Training and a further 72 will attend the Course during the year... The School also trains 'Live Line' linesmen for the Electricity Supply Industry, who upon completion of training are authorised by the Commission to work on live high and extra high voltage lines.

B



in the safe use of electricity and electrical appliances. The students will also bring this important matter to the attention of their parents.

A new publication "A Lead to Safety" was produced by the Council during the year and will be distributed with sales of electrical appliances and equipment. This pamphlet highlights the connection of flexible cords and points out the need for this work to be performed by qualified persons. Its importance may be judged by consideration of item (b) (i), above, and by reference to Appendix I of this Report.

Work is continuing on the revision of publicity dealing with overhead conductors.

The Council entered a display in the Queensland Occupational Safety Convention at Festival Hall. A photograph of this display appears on page 11.

(d) APPROVAL OF ELECTRICAL EQUIPMENT

During the year, this phase of the Commission's inspectorial activities continued. Approval of prescribed articles and acceptance of unprescribed articles is in step with the increasing variety of electrical equipment being offered for sale in Queensland.

Additional equipment is being considered for inclusion in the list of articles which must be approved by the Commission before being offered for sale. An increasing number of people are taking advantage of the Commission's Voluntary Submissions Scheme which provides for unprescribed articles to be checked against specified safety requirements.

A regular schedule of systematic inspections of retail and wholesale outlets throughout the State is conducted to ensure that the requirements of the Electrical Approvals Regulations are complied with.

These inspections reveal that the standard of safety of electrical equipment exposed for sale in Queensland continues to improve, particularly with respect to overseas equipment of known manufacture.

The Commission is actively represented on the Electrical Approvals Standards Committee of the Standards Association of Australia, which deals with the preparation of Approval and Test Specifications, and also continuing revision of existing specifications.

The Commission again records its appreciation of the assistance received from other State Authorities on approvals matters, and of the excellent co-operation given by manufacturers, importers, distributors, wholesalers and retailers of electrical appliances.

9. CERTIFICATION OF ELECTRICAL WORKERS AND LICENSING OF CONTRACTORS

(a) REPORT ON ACTIVITIES—THE ELECTRICAL WORKERS' AND CONTRACTORS' BOARD

Following amendments to the Electrical Workers' and Contractors' Act (see item (b)) the tenure of office of previous Board members other than the Chairman terminated on 30th June, 1972.

The Amendments made provision for fresh nominations to be made by the various organisations involved. The composition of the Board for the three years from 1st July, 1972, is as follows:—

HERBERT LOUIS DOWDELL (Chairman)—the representative of the Government nominated by the Minister

ROY HENRY WALLACE—the representative of the State Electricity Commission of Queensland

RONALD LESLIE HAYWARD—the representative of Electric Authorities in the State

TERRANCE ROYDEN SMITH—the representative of the Fire and Accident Underwriters Association of Queensland

FRANK ALUN ROBERTS—the representative of the Electrical Contractors

NEVILLE GEORGE WARBURTON—the representative of the Electrical Trades Union of Employees of Australia (Queensland Branch)

During the past year the Board issued 889 new permanent Certificates of Competency to electrical workers and 82 new Restricted Certificates of Competency to persons performing electrical work associated with another trade or calling.

The table hereunder shows the number of Restricted Certificates of Competency, Electrical Contractors' Licenses and Installation Permits which were current at 30th June, 1972, and the increases or decreases on the previous year's figures:—

	Current at 30th June, 1972	Increase or decrease over number current at 30th June, 1971
Restricted Certificates	1,320	+ 82
Contractors' Licenses	1,503	+ 80
Installation Permits ..	242	+ 3

(b) AMENDMENTS TO ELECTRICAL WORKERS' AND CONTRACTORS' ACT AND REGULATIONS

The amendments to the Act were proclaimed during the year and at the same time the Regulations were repealed and new Regulations were promulgated.

Generally the amendments provide:—

(i) for the entry of persons with appropriate qualifications into employment in the electrical industry;

(ii) for additional protection to electricity consumers against defective work; and

(iii) for the clarification of legal points which will facilitate the administration of the Act.

(c) UNIFORMITY OF LICENSING OF ELECTRICAL WORKERS THROUGHOUT AUSTRALIA

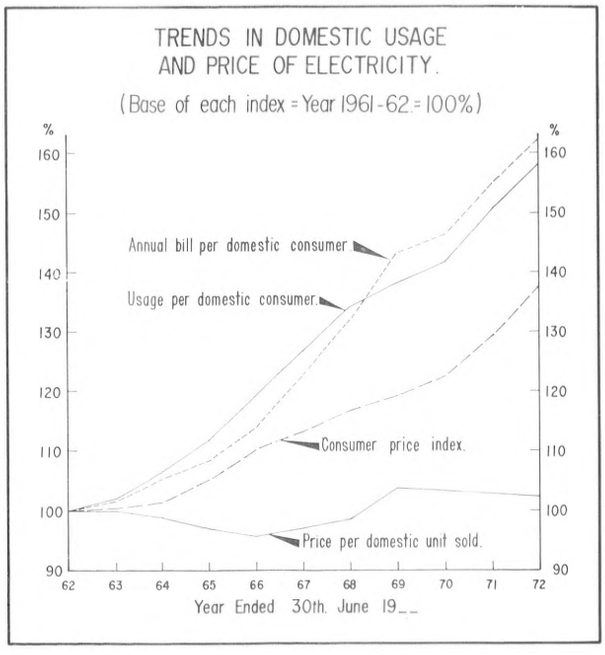
During the year the existing arrangements for reciprocity have been extended to encompass electrical mechanics obtaining their qualifications by various means.

Work in this most important field will continue towards the objective of a "single certificate" scheme of licensing.

10. PRICE OF ELECTRICITY

After a long period of stable prices in the industry generally, the results for the year under review and the budgets for the 1972–73 year indicated that rising costs could no longer be absorbed. Accordingly, applications for a number of increases were approved by the Commission.

The Wide Bay–Burnett Regional Electricity Board, after four years of stable tariffs, increased its prices by 10 per cent.



Prices in the City of Mount Isa which had remained unchanged for over ten years, had to be increased during the year by 16 per cent. Lesser increases of approximately 5 per cent. applied in Cloncurry.

Tariffs in Dalby Town Council's area of supply were increased by 8 per cent. and tariffs in the Cairns, Townsville and Mackay Regional Board areas were increased by 5 per cent. The Capricornia Regional Electricity Board made minor adjustments to some tariffs during the year.

After four years of tariff stability, an examination of variations was initiated in south-eastern Queensland by the Southern Electric Authority of Queensland and by the Brisbane City Council.

Attention has been drawn again to the differences in electricity prices between different areas of the State. Equalisation of retail tariffs throughout the State has been examined, but it is not economically possible at this time without some form of subsidy from outside the industry. However, active research and consultation is being undertaken with the objective of progressively reducing the very high tariffs in some remote areas.

11. NEW OFFICE BUILDING

On 6th March, 1972, the Commission occupied the first stage of the new office building which has been constructed on the site of the previous office. Following the demolition of the old building the second stage of the office was occupied in September, 1972.

The new office is a completely air-conditioned building of modern design incorporating the extensive use of pre-cast concrete to secure column free office space. The building also incorporates conference rooms to enable the Commission to conduct conferences within the Electricity supply industry.

12. CAPITAL WORKS PROGRAMME

(a) Capital Works Programme 1972–73

The estimated expenditure on the capital works programme of the Electricity Supply Industry during the 1972–73 financial year is $78,173,825.

The following table shows details of this amount, together with the total estimated cost of works in hand, and the expenditure for these works to 30th June, 1972:—

	Total Estimated Cost of Works in Hand	Total Expenditure to 30th June, 1972, on Works in Hand	Total Estimated Expenditure 1972–73
	$	$	$
Southern Area—			
Brisbane City Council	6,285,000	..	6,285,000
The Southern Electric Authority of Queensland	150,771,131	120,278,082	19,624,794
The Wide Bay–Burnett Regional Electricity Board	12,758,100	10,399,152	1,295,000
Dalby Town Council	1,317,195	791,415	382,138
Sub-total	171,131,426	131,468,649	27,586,932
Central Area—			
The Capricornia Regional Electricity Board	53,156,800	34,165,279	3,895,293
Sub-total	53,156,800	34,165,279	3,895,293
Northern Area—			
The Cairns Regional Electricity Board	2,321,804	51,610	1,583,104
The Townsville Regional Electricity Board	6,808,106	2,530,921	2,364,896
The Mackay Regional Electricity Board	14,120,000	11,020,996	1,602,377
The Northern Electric Authority of Queensland	24,002,800	6,471,335	8,498,215
Sub-total	47,252,710	20,074,862	14,048,592
Western Area—			
The Central Western Regional Electricity Board	1,084,700	663,408	361,713
Other Western Electric Authorities	9,831,327	5,874,590	1,549,215
Sub-total	10,916,027	6,537,998	1,910,928
Gladstone Power Station Project—			
(*a*) Power Station	151,000,000	6,056,281	23,963,854
(*b*) Local Transmission, Gladstone	4,000,000	386,389	539,000
(*c*) South Pine/Gladstone Transmission line	35,000,000	12,620,928	5,538,166
Sub-total	190,000,000	19,063,598	30,041,020
Sundries	1,630,000	893,940	691,060
Total	474,086,963	212,204,326	78,173,825

In addition to raising new loan capital it will be necessary to obtain $16,860,559 from internal sources to meet the programme.

The overall total investment on electrical development to 30th June, 1972, amounts to $820,000,000.

(b) New Capital Raisings 1972–73

The authorised new capital raisings for the year 1972–73 have been allocated as follows:—

	$
State Electricity Commission of Queensland	22,465,000
Southern Electric Authority of Queensland	11,610,069
Brisbane City Council*	4,000,000
Central Western Regional Electricity Board	Nil
Other Local Authority Electricity Undertakings	257,000
Total	$38,332,069

* Electricity requirements only.

(c) Loan Raisings 1971–72

During the financial year ended 30th June, 1972, the Commission arranged public and private loans (inclusive of Treasury Loans) amounting to $13,510,000, which represented a full raising of the amount authorised for the year. In addition conversions totalling $5,340,787 were arranged. The Brisbane City Council and the Southern Electric Authority of Queensland during the year 1971–72 were again substantial

borrowers of public and private loan funds for electrical development—the former raising $4,050,000 and the latter $24,425,000 (including Variable Interest Stock).

(d) Loan Raisings by Commission to Date

The total of public and private loans (including Treasury Loans) negotiated by the Commission for capital works to 30th June, 1972, amounts to $247,989,331 raised as below:—

	$
Private Loans	150,442,279
Public Issues for new works	97,547,052
Total	$247,989,331

(e) Subsidies

Subsidies paid to the Regional Electricity Boards and the Local Authorities for the year 1971–72 for electricity purposes were:—

	$
Regional Boards	60,507
Local Authorities	479,790
Total	$540,297

This is the highest payment to Queensland electricity authorities since 1958–59 and is due to the substantial generation and rural distribution works which were accomplished in the western areas of the State during the year.

Subsidies on electrical works are now paid only in the relatively isolated western areas of the State, where high tariffs and low density of population create special difficulties.

13. THE ELECTRICITY TRUST FUND

The balance of The Electricity Trust Fund at 30th June, 1972, including funds invested at short term, was $725,709. This figure included unspent loan funds in respect of the Commission's New Building ($489,336) and for investigations into the use in power stations of washery reject coal ($22,023). The balance of $214,350 represents the funds available and carried forward to meet the operational costs of the Commission.

Excluding transactions relating to projects financed from loan funds and recoverable items, expenditure for 1971–72 was $1,298,878 compared with receipts of $1,198,819 for the year.

Fees payable by the electric authorities under Regulation 117 of The Electric Light and Power Regulations were increased from 1st July, 1972, by approximately one-third. The increase in fees was necessary to meet increased costs and maintain financial stability in the Trust Fund.

Estimates for the 1972–73 financial year provide for the following:—

	$	$
Balance 1st July, 1972		725,709
Receipts—		
General (Fees, &c.)	1,277,000	1,277,000
		2,002,709
Expenditure—		
New Building and Washery		
Reject Coal Investigations	511,359	
General	1,449,660	1,961,019
Balance 30th June, 1973		$41,690

The above figures exclude transactions in respect of recoverable expenditures which are provided for in the Treasury Estimates by way of an imprest vote of $100,000 for Miscellaneous Services. It is anticipated that all loan funds allocated for the new building and investigations will be fully expended during the year 1972–73.

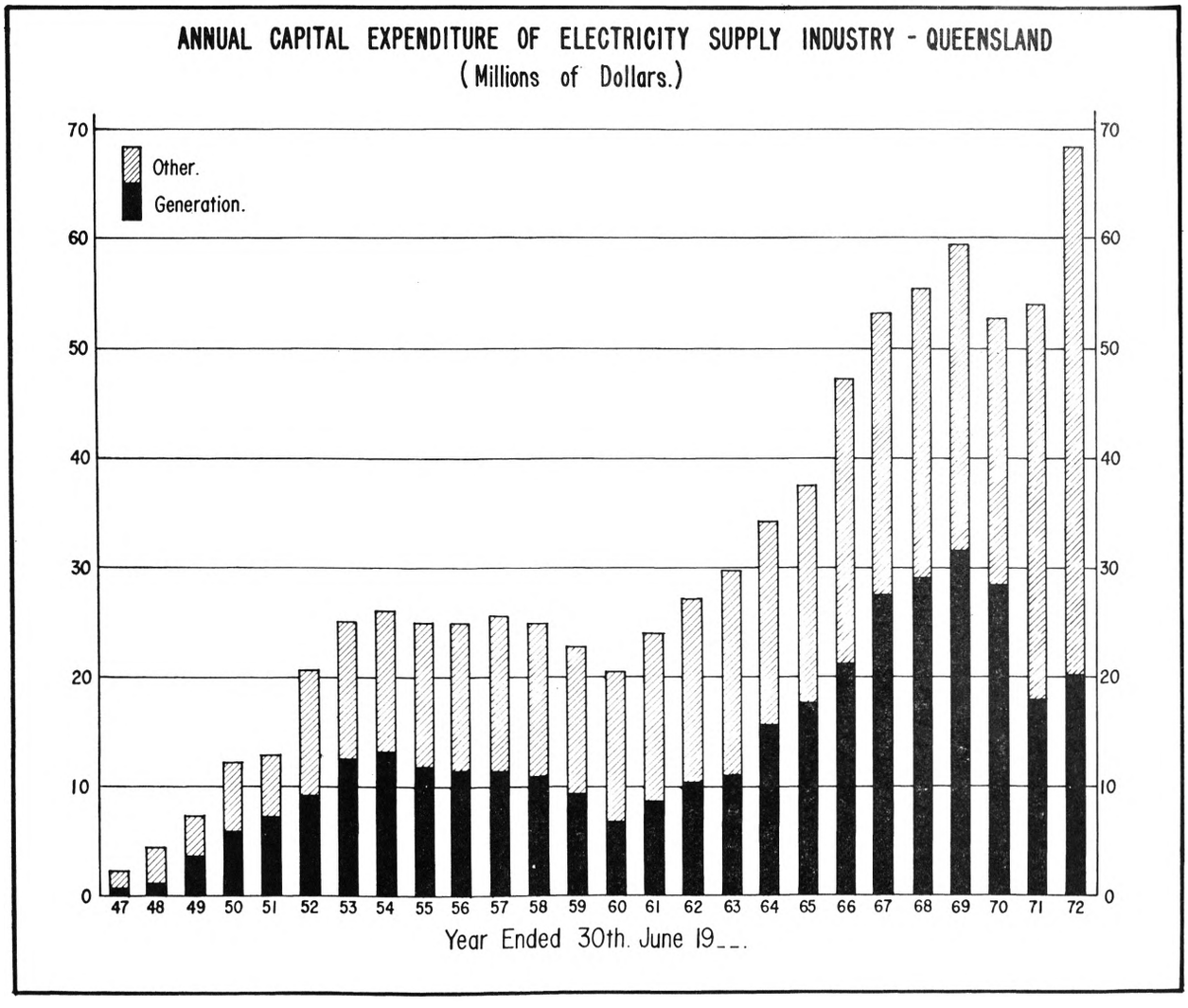
Gladstone Power Station Construction Fund

This fund was established during 1970–71 and records transactions relative to the construction of the Gladstone Power Station project.

Transactions of the fund since inception to 30th June, 1972, are summarised hereunder—

Receipts—	$	$
Treasury Loan Funds		3,400,000
Debenture Loans		4,963,180
		8,363,18
Expenditure—		
Power Station	6,017,335	
Local Transmission	386,389	
Interest and Loan Charges	38,946	
South Pine–Gladstone Transmission Line	*607,656	7,050,326
Balance 30th June, 1972		$1,312,854

*This expenditure of $607,656 has been reimbursed to the Commission by The Southern Electric Authority following the transfer of financial responsibility for the South Pine to Gladstone Transmission Line. At 30th June, 1972, the amount was held in the Commission's Loan Account and invested at short term pending the requirement of additional funds to meet expenditure in 1972–73.



Provision has been made in the Estimates for the current financial year for expenditure totalling $24,502,854 and for receipts from the following sources:—

	$
Commonwealth advances in accordance with the Gladstone Power Station Agreement Act 1970 (Commonwealth)	14,000,000
State Loan Funds	2,500,000
Debenture Loan Funds	6,190,000
Department of Development and Industrial Affairs	500,000
	$23,190,000

14. LOAN FUND ACCOUNTS

The total loan indebtedness of the Commission at 30th June, 1972, amounted to $202,083,221.99 as follows:—

	$
Public Loans	82,535,028.00
Private Loans	119,548,193.99
	$202,083,221.99

The Reserve Bank of Australia has continued to act as The State Electricity Commission of Queensland Registry of Inscribed Stock.

To provide for repayment of the principal of the various loans at date of maturity, Sinking Funds have been established by the Trustees of The State Electricity Commission Debt Redemption Fund. The Trustees are the Auditor-General (Chairman), the Under Treasurer and the Commissioner for Electricity Supply. At 30th June, 1972, payments on account of Sinking Fund Contribution towards the redemption of current loan indebtedness amounting to $14,628,444.95 were held by the Trustees.

The current annual contribution to Sinking Fund, which includes loan conversions, is equivalent to approximately $1.3077 per cent. per annum.

Loan Funds including funds invested at short term totalling $5,229,309.44 were held by the Commission at 30th June, 1972. Short term investment of funds not immediately required earned a total of $535,481.80 during the past financial year.

15. REPORT OF SINKING FUND OPERATIONS—YEAR ENDED 30TH JUNE, 1972

The accumulated Sinking Fund credit balances at 30th June, 1972, totalled $19,230,480.44 having increased from $17,071,098.80 as at 1st July, 1971, a net increase of $2,159,381.64. This increase in the Sinking Fund balances during the year can be summarised as follows:—

	$	$
Sinking Fund Credit Balances as at 1st July, 1971	..	17,071,098.80
Add Contributions by State Electricity Commission	2,183,106.82	
Interest on Investments	1,037,149.95	
Profit on sale or maturity of Securities	52.49	
Commission and Discount	4,000.00	
		3,224,309.26
		20,295,408.06
Less Sundry Payments	888.95	
Sinking Fund Maturities	1,064,038.67	
		1,064,927.62
Sinking Fund Credit Balances as at 30th June, 1972	..	19,230,480.44

The amount invested in securities at 30th June, 1972, was $17,680,074.26 the net increase during the year being $984,728.61 as under:—

Security	Face Value $	Amount $
State Electricity Commission of Queensland Inscribed Stock	48,713.00	48,721.55
State Electricity Commission of Western Australia Inscribed Stock	250,000.00	250,000.00
North Brisbane Hospitals Board Inscribed Stock	12,000.00	12,000.00
Chermside Hospitals Board Inscribed Stock	10,000.00	10,000.00
Brisbane City Council Inscribed Stock	680,000.00	680,000.00
	1,000,713.00	1,000,721.55
Debenture Loans	..	15,992.94 *Cr.*
		$984,728.61

Details of the total securities held by the Trustees at 30th June, 1972, are set out hereunder:—

	Face Value $	Cost $
Commonwealth Government Inscribed Stock	1,933,220.00	1,933,220.00
Southern Electric Authority of Queensland Inscribed Stock	159,000.00	159,000.00
Brisbane City Council Inscribed Stock	4,270,800.00	4,270,800.00
State Electricity Commission of Queensland Inscribed Stock	10,134,074.00	10,131,360.63
Brisbane Markets Trust Inscribed Stock	60,000.00	60,000.00
South Brisbane Hospitals Board Inscribed Stock	29,500.00	29,500.00
North Brisbane Hospitals Board	12,000.00	12,000.00
Chermside Hospitals Board	10,000.00	10,000.00
State Electricity Commission of Victoria Inscribed Stock	690,400.00	683,306.98
State Electricity Commission of Western Australia	250,000.00	250,000.00
Gas and Fuel Corporation of Victoria Inscribed Stock	38,600.00	37,874.32
Debenture Loans	..	103,012.33
	$17,587,594.00	$17,680,074.26

The balance of funds uninvested at 30th June, 1972, amounted to $1,550,406.18, made up as follows:—

	$
Short Term Investments	1,435,000.00
Cash at Bank	115,406.18
	$1,550,406.18

The annual interest receivable on securities purchased and converted during the year ended 30th June, 1972, will amount to $98,689.50 which is equivalent to an average return of 7·3497 per cent. per annum.

The interest receivable on the total investments held at 30th June, 1972, amounts to $1,053,250.98 which is equivalent to an average return of 5·9886 per cent. per annum as compared with 5·921 per cent. for the previous year.

APPENDIX I

SUMMARY OF CAUSES OF ELECTRICAL ACCIDENTS REPORTED TO THE COMMISSION DURING THE YEAR ENDED 30TH JUNE, 1972

ELECTRICAL ACCIDENTS

Category	Total	Fatal	Non-Fatal
1. ELECTRICAL WORKERS—			
(*a*) Work on Electric Authorities' Works	27	2	25
(*b*) Work on Consumers' Premises			
(i) Employees of Electric Authorities	9	..	9
(ii) Employees of General Industry	20	..	20
	56	2	54
2. POWER LINES—			
(*a*) Overhead Mains	27	3	24
(*b*) Overhead Services	30	..	30
(*c*) Fallen Conductors	1	1	..
(*d*) Underground Mains	..	..	..
(*e*) Other Overhead Conductors	7	2	5
	65	6	59
3. FIXED WIRING IN CONSUMERS' PREMISES—			
(*a*) Cables—Breakdown or Damage of Insulation	35	2	33
(*b*) Earthing Conductors	38	..	38
(*c*) Conduits	6	..	6
(*d*) Equipment	34	..	34
(*e*) Interference with Supply " on "	16	..	16
(*f*) Crane Collector Wires	3	..	3
(*g*) Exposed Contacts	8	..	8
	140	2	138
4. FLEXIBLE CORDS AND CORD FITTINGS—			
(*a*) Incorrect Connection	39	9	30
(*b*) Earthing Conductor Adrift	14	..	14
(*c*) Exposed Contacts	4	..	4
(*d*) Damage to Flexible Cords	11	..	11
(*e*) Interference with Supply " on "	7	1	6
	75	10	65
5. APPLIANCES, HANDLAMPS AND TOOLS—			
(*a*) Exposed Contacts (including Welders)	16	1	15
(*b*) Breakdown of Insulation and Defective Earthing	57	4	53
(*c*) Incorrect Assembly or Connection	4	1	3
(*d*) Interference with Supply " on "	19	..	19
	96	6	90
	376	26	350
SHOCKS DUE TO UNAUTHORISED OR AMATEUR WORK	56	11	45

MECHANICAL ACCIDENTS

Category	Total	Fatal	Non-Fatal
(*a*) Falls from Poles or Ladders	6	..	6
(*b*) Rotted Poles or Crossarms	1	..	1
(*c*) Failure of Equipment	1	..	1
(*d*) Accidents Involving Vehicles	..	..	..
(*e*) Falling Objects	5	1	4
(*f*) Unclassified	2	1	1
TOTAL	15	2	13

APPENDIX II

SUMMARY OF FATAL ELECTRICAL ACCIDENTS

The following summarises the circumstances under which fatal accidents occurred during the year 1971-72:—

(i) A share farmer received a fatal electric shock when he raised a length of irrigation piping and it contacted a 240 volt overhead consumer's aerial line.

(ii) A pole contractor received a fatal electric shock while carrying out pole inspections. He contacted a wire on a stay pole which was energised due to an 11,000 volt overhead line touching an aerial stay.

(iii) A saw operator received a fatal electric shock when he contacted a motor starter while holding an earthed winch rope. The starter was alive due to deteriorated wiring and a broken earthing conductor.

(iv) When carrying out tests in a substation, an installation inspector received a fatal electric shock when he contacted an open circuited earth lead from the 33,000 volt overhead busbar.

(v) While carrying out unauthorised wiring under his house, an orderly received a fatal electric shock when he cut into an energised cable with a pair of side cutters.

(vi) Due to an unauthorised connection of a flexible cord, a gardener received a fatal electric shock when he grasped an electric drill to which was fitted a hedge clipper attachment.

(vii) An underground foreman received a fatal electric shock when he climbed onto an energised oil circuit breaker in a substatioin yard. The de-energised circuit breaker on which he had been working was adjacent to the energised one.

(viii) A refrigeration mechanic received a fatal electric shock while working in a cold room. He slipped off a ladder into a brine bath and a lead light fell into the brine.

(ix) Due to unauthorised assembly of an extension lead with a three pin plug on either end, a student received a fatal electric shock when he contacted the exposed live pins of one of the three pin plugs.

(x) Due to the unauthorised connection of an extension lead, a storekeeper received a fatal electric shock when he contacted the energised metal frame of one refrigerator while touching the earthed metal frame of a second refrigerator in his shop.

(xi) Due to a breakdown of insulation in the motor and faulty earthing, a cadet surveyor received a fatal electric shock when he contacted the metal frame of a concrete mixer.

(xii) Due to the unauthorised assembly of an extension lead with a three pin plug on either end, a student received a fatal electric shock when he contacted the exposed live pins of one of the plugs.

(xiii) Due to the unauthorised connection of an extension lead, a storeman received a fatal electric shock while working on a refrigerator.

(xiv) A child received a fatal electric shock when he contacted the exposed live cap of an edison screw lampholder which was connected to an unauthorised lead light.

(xv) A truck driver received a fatal electric shock when he touched the side of a crane, the boom of which was in contact with a live consumer's aerial line.

(xvi) A plumbing contractor received a fatal electric shock when he lifted a 24 ft length of guttering which made contact with a 12,700 volts overhead line.

(xvii) Due to a breakdown of insulation and faulty earthing, a housewife received a fatal electric shock when she touched the metal frame of a washing machine.

(xviii) A grazier received a fatal electric shock when he contacted the exposed contacts of a 32 volt battery charger which was connected to a 240 volt A.C. private plant.

(xix) Due to an unauthorised connection of an extension lead, a labourer received a fatal electric shock when he contacted a concrete de-stressing machine.

(xx) A railway fireman received a fatal electric shock when he picked up a live wire brought down during a cyclone.

(xxi) Due to the unauthorised connection of an extension lead, a labourer received a fatal electric shock when he contacted the frame of an electric drill.

(xxii) Due to the unauthorised connection of an extension lead, a truck driver received a fatal electric shock when he contacted the metal frame of an electric drill.

(xxiii) Due to the unauthorised assembly of an extension lead with a three pin plug on either end, a public servant received a fatal electric shock when he contacted the exposed pins of one of the three pin plugs.

(xxiv) A plant operator received a fatal electric shock when he contacted a metal pipe under his house. The pipes and the earthing conductor were energised due to a fault in fluorescent lighting fitting and an open circuited earthing conductor.

(xxv) A labourer received a fatal electric shock while holding the hook of a mobile crane when the jib of the crane contacted a 66,000 volt overhead line.

(xxvi) While standing in water, a grazier received a fatal electric shock when he contacted an electric pump motor, the frame of which was energised due to the breakdown of insulation in the motor and faulty earthing.

SUMMARY OF FATAL MECHANICAL ACCIDENTS

(i) A coal trimmer received fatal injuries when working in a power house coal bunker when a fall of coal covered him.

(ii) A linesman received fatal injuries when falling a pole through a gateway. The pole hit the fence post and the end kicked up and then rebounded across his head and shoulders.

APPENDIX III

DETAILS OF GENERATING PLANT INSTALLED ON ORDER AND REQUIRED FOR FUTURE DEVELOPMENT

Electric Authority	Location of Plant	Description of Plant	Capacity
(1) INSTALLATION OF PLANT RECENTLY COMPLETED			
Southern Electric Authority of Queensland	Swanbank ..	One boiler—Swanbank "B" Power Station (No. 3)	840,000 lb/hr.
Southern Electric Authority of Queensland	Swanbank ..	One turbo-generator—Swanbank "B" Power Station (No. 3)	120 MW
Roma Town Council	Roma ..	Two dual fuel engines and generators	2,150 kW each
Central Western Regional Electricity Board	Longreach ..	One oil engine and generator (ex Cairns) ..	750 kW
Cairns Regional Electricity Board ..	Thursday Island	One oil engine and generator (ex New Guinea)	500 kW
Boulia Shire Council	Boulia ..	One oil engine and generator	75 kW
(2) PLANT BEING INSTALLED			
Southern Electric Authority of Queensland	Swanbank ..	One boiler—Swanbank "B" Power Station (No. 4)	840,000 lb/hr.
Southern Electric Authority of Queensland	Swanbank ..	One turbo-generator—Swanbank "B" Power Station (No. 4)	120 MW
Barcoo Shire Council	Windorah ..	Two oil engines and generators	35 kW each
(3) PLANT WHICH HAS BEEN ON ORDER FOR SOME TIME OR BEING PLANNED			
State Electricity Commission of Queensland	Gladstone ..	Four boilers—Gladstone Power Station (Nos. 1 to 4)	1,980,000 lb/hr. each
State Electricity Commission of Queensland	Gladstone ..	Four turbo-generators—Gladstone Power Station (Nos. 1 to 4)	275 MW each
State Electricity Commission of Queensland	Gladstone ..	One gas turbine and generator (house set) ..	14 MW
Northern Electric Authority of Queensland	Collinsville ..	One boiler—Collinsville Power Station (No. 5)	550,000 lb/hr.
Northern Electric Authority of Queensland	Collinsville	One turbo-generator—Collinsville Power Station (No. 5)	60 MW
Cairns Regional Electricity Board ..	Thursday Island	One oil engine and generator	500 kW
Cairns Regional Electricity Board ..	Normanton ..	One oil engine and generator (ex Thursday Island)	200 kW
Cairns Regional Electricity Board ..	Georgetown	One oil engine and generator	100 kW
(4) PLANT UNDER CONSIDERATION			
Central-South East Queensland ..	Site to be determined	Boilers and turbo-generators	To be determined
North Queensland	Sites to be determined	Two gas turbines and turbo-generators	15 MW each
Townsville Regional Electricity Board ..	Hughenden ..	Additional oil engines and generators	2,000 kW each
Murweh Shire Council	Charleville	Additional oil engine and generator	1,000 kW
North Western Electric Authority ..	Dajarra ..	Two oil engines and generators	35 kW each

APPENDIX IV

BRISBANE CITY COUNCIL—DEPARTMENT OF ELECTRICITY

ANNUAL REPORT FOR THE YEAR ENDED 30th JUNE, 1972

The major event for the Department was the commissioning on 8th November, 1971 of the bulk supply substation situated at Gregory Terrace and Bowen Bridge Road, Victoria Park. It was the largest single construction project in the history of the department.

Another event was that a link with the past was severed during the year under review when in March, 1972 the remaining direct current low voltage supply system was de-energised in the central City area—all consumers having been converted to A.C. supply. Until this time Brisbane has had continuously some D.C. supply since the genesis of Brisbane's first electricity supply in 1887 when consumers then received only direct current.

BUSINESS RESULTS

Selling and Buying Tariffs

The current tariff schedule under which electricity is sold to Brisbane consumers came into force on the 3rd May, 1968. No changes have been made since this date.

The overall buying price the City Council has had to pay for the year amounted to 1·278 cents per unit. This figure shows a significant increase over the price of the previous two years, and is 8·3 per cent. above the figure for 1970–71. It is the highest since rationalisation of electricity in south east Queensland in 1963. The increase has been due to increases in wages, rising costs of coal, and a basically higher bulk supply tariff. Since the introduction of rationalisation the cost per unit to the City Council has varied as shown.

Year	Cents Per Unit Purchased
1963–64	1·220
1964–65	1·219
1965–66	1·192
1966–67	1·163
1967–68	1·199
1968–69	1·274
1969–70	1·192
1970–71	1·180
1971–72	1·278

Revenue and Expenditure

The average revenue per unit sold was 2·068 cents. This figure may be compared with a figure of 2·0953 cents per unit sold in 1970–71.

——	1970–71	1971–72	Percentage Increase
Electricity sales—	$	$	
Domestic	16,734,888	17,512,613	4·6
Commercial	13,911,244	15,050,036	8·2
Industrial	10,712,635	11,317,176	5·6
Rural	171,897	159,698	−7·1
Street Lighting	640,323	661,593	3·3
Miscellaneous	255,678	264,639	3·5
Total Revenue	$42,426,665	$44,965,755	6·0

The foregoing sales are represented in the following table of units sold in millions of units.

——	1970–71	1971–72	Percentage Increase
Electricity sales—			
Domestic	906·1	960·0	5·9
Commercial	455·7	509·1	11·7
Industrial	635·1	676·8	6·6
Rural	8·7	8·0	−8·0
Street Lighting	19·2	20·0	4·2
Total Units Sold in millions	2,024·8	2,173·9	7·4

Expenditure in 1971–72 compared to 1970–71 showed an increase of 14·5 per cent.

——	1970–71	1971–72	Percentage Increase
	$	$	
Purchase of Energy	25,379,007	29,284,051	15·4
Distribution and General Expenses	7,306,602	8,627,158	18·1
Interest and Exchange	2,391,082	2,387,028	−0·2
Depreciation	2,450,012	2,656,546	8·4
Total Expenditure	$37,526,703	$42,954,783	14·5

Yearly units purchased since rationalization have been:—

Year	Units Purchased 1,000,000 kWh	Price $'000
1963–64	1,257·0	15,341
1964–65	1,348·4	16,433
1965–66	1,504·9	17,944
1966–67	1,631·7	18,984
1967–68	1,769·2	21,211
1968–69	1,842·7	23,485
1969–70	1,981·9	23,620
1970–71	2,150·2	25,379
1971–72	2,291·5	29,284

ELECTRICITY DISTRIBUTION

During the year 2,291,545,800 kW hours of energy were purchased from the Southern Electric Authority of Queensland. This was an increase of 6·6 per cent. on the 2,150,194,100 kW hours purchased in the previous year.

The maximum daily number of kW hours purchased for the year was 8,277,000 on 21st June, 1972. The highest maximum demand occurred on the same day when the official recorded figure was 512,100 kW.

Major improvements to the distribution system included the commissioning on 8th November, 1971 of the bulk supply zone substation at Gregory Terrace. Soon after the Astor Terrace substation was commissioned, and this allowed load to be transferred off two heavily loaded City substations thus enabling the expected City summer load to be handled more comfortably. In January, 1972 new 11kV switchgear was commissioned at Gregory Terrace substation.

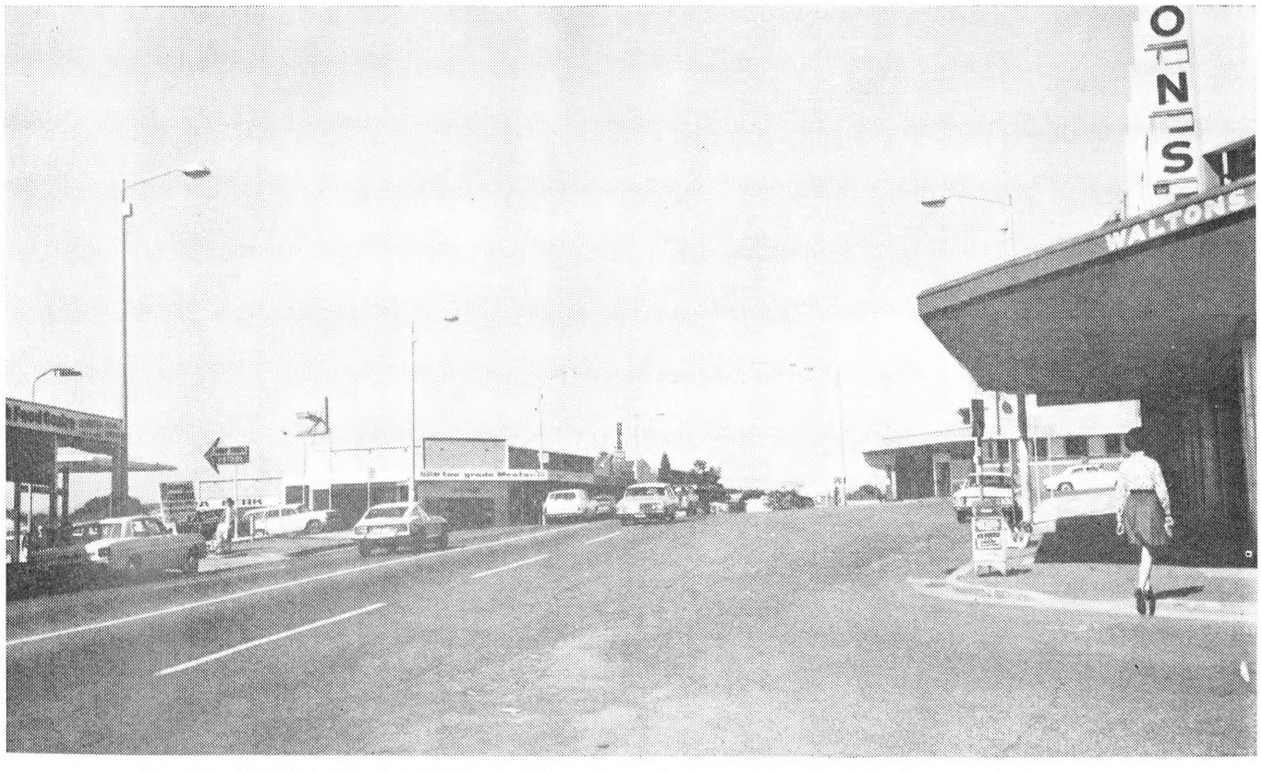
In May, 1972 the Belmont Bulk Supply zone substation was supplied at 275kV. These improvements to the Southern Electric Authority of Queensland generation and transmission system have provided greater security of supply and have allowed their older generating plant at Tennyson "A" and Bulimba "B" Power Stations be run at peak load plant only.

Major interruptions were caused by storms throughout the summer and by cyclones "Daisy" and "Emily." High winds from cyclone "Daisy" caused damage to the overhead mains system and the heavy rain from both cyclones caused flooding and damage to consumers' electrical installations.

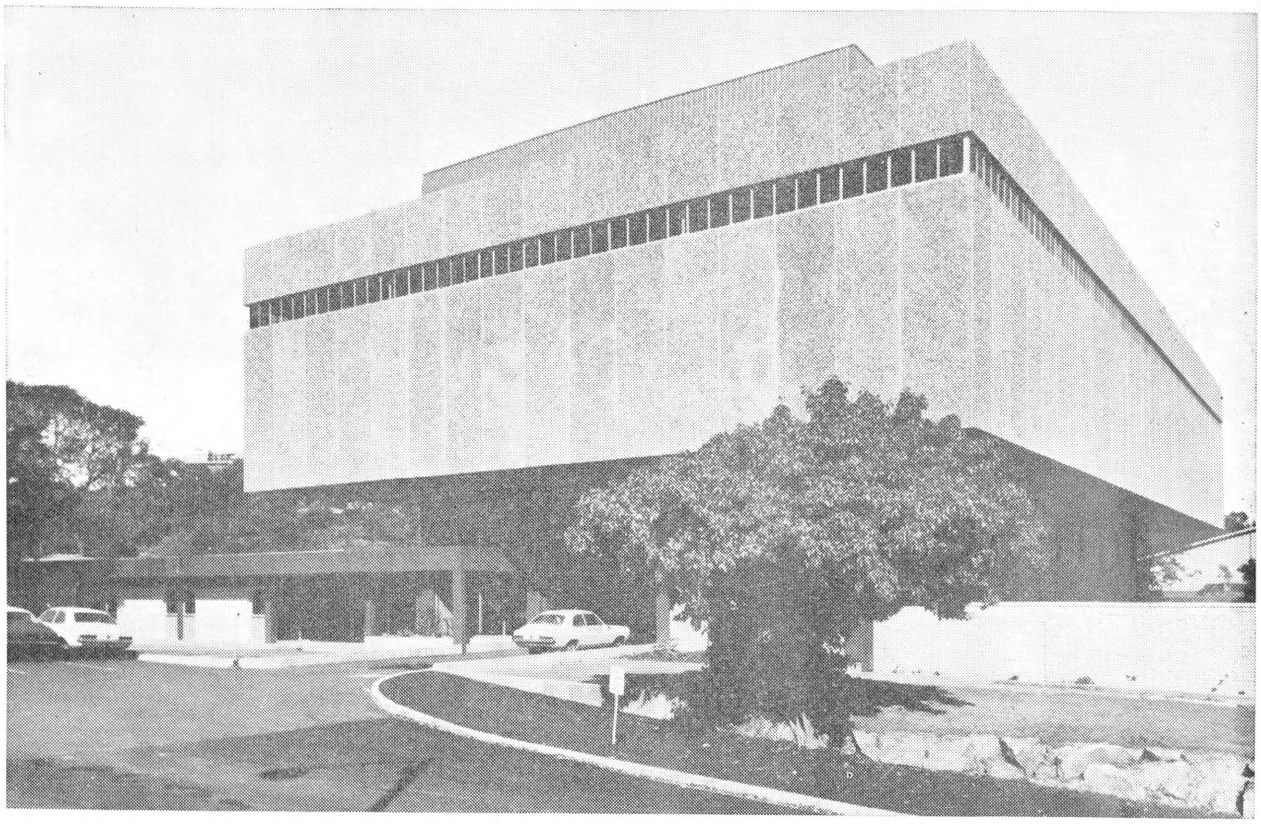
On two occasions supply was interrupted to consumers because of supply failure at bulk supply points anad large numbers of consumers were affected.

Two new 125KW mobile alternators were put into operation to give where required continuous supply to consumers during maintenance work. Operating time saved by the use of mobile alternators was 664 hours and 48 minutes.

Two types of silenced air compressors purchased by the B.C.C. Department of Electricity. The noise level of these machines does not exceed 72 dBA.



Nundah Shopping Centre, Brisbane, after the undergrounding of electricity mains and services.



The B.C.C. Department of Electricity's new Bulk Supply Substation and Main Control Centre at Bowen Bridge Road and Gregory Terrace.

The Brisbane City Council's Computer Room housing the 1902A I.C.L. computer. Illumination is provided by 18—4 x 40 watt fluorescent recessed fittings, providing 150 lumens per square foot to working surfaces.

Radio Transmitter

The department operates a radio communication system used by all Council departments. The transmitter was on the air during 1971–72 for 2,478 hours 16 minutes.

—	Department of Electricity	Calls Other Departments	Total
1968–69	42,743	61,974	104,717
1969–70	50,261	65,719	115,980
1970–71	56,374	75,476	131,850
1971–72	64,854	79,745	144,599

A total of 421 Council vehicles have been fitted with two-way radios.

MAINS BRANCH

Overhead and Underground Mains

The 1,362 poles erected, comprising wood, steel, and concrete types showed a significant decrease on the previous years' figures. This is 899 less than the previous year's figure. Some 127 poles were acquired from other authorities, almost all of these were redundant P.M.G. poles. The net increase of 1,120 poles in the system, is less than 50 per cent. of the previous year's total. The number of services connected this year was 5,757, this being 708 above the previous year and reflects the renewed activity in the building trade. The most noticeable increase was in the number of Underground Services—685 being installed. A net total of ·228 miles of 33kV overhead lines were erected, this being less than 50 per cent. of the previous year. 24·563 miles of 11kV lines were erected, and 37·221 miles of three phase low tension overhead mains were erected.

A large number of services were dismantled, and there was a significant decrease in the mileage of overhead lines erected. In spite of all this, the overall load continued to increase. This shows the trend towards Underground servicing and the increasing number of multi-storey home units being erected on previous one consumer residential blocks.

A total of 75·074 miles of underground cable was laid by the Underground Mains Section. An increasing amount of this cable is being laid in new estates and shopping centres.

The transfer of the underground office and stores section from the flood prone Northey Street Depot to the Gregory Terrace complex was completed. This task took some considerable man hours of valuable time, but the benefits of a flood free depot adjacent to a centralised Design and Administrative staff office are considerable.

Shopping centres at Bay Terrace, Wynnum, and Logan Road, Mt. Gravatt were undergrounded and the overhead mains recovered together with modernisation of the street lighting using colour corrected mercury lamps on steel standards. The installation of underground mains and street light circuits and the associated street lighting was also completed at Nundah and overhead construction dismantled during the year. Some work a similar conversion at Sandgate was carried out.

DESIGN BRANCH

With the assistance of the Council's Operations and Methods Branch a start was made on the production of a five-year works programme, using the techniques of multi-project scheduling. The work was done on the Council's computer, using the I.C.L. PERT programme.

Some problems arising from construction methods and system operation were investigated using the Department's Hewlett-Packard Calculator-Plotter. Among these were:—

1. Economics of the provision of pipes in footpaths.
2. Economics of transformer capacity.
3. 11kV feeder regulation.
4. Day loads, winter and summer.
5. Projection of number of overloaded transformers.
6. Ratings of 33/11kV transformers.

Distribution planning was initiated in connection with 108 major consumers. 102 residential subdivisions were processed, 90 per cent. of which were underground, and 12 industrial subdivisions. Measures were also initiated for the relief of 133 overloaded transformers.

The following statistics give an indication of the considerable volume of work the reprographic section handles. The introduction of a number of mechanical improvements has kept this volume manageable and the "Copylin" camera has proved invaluable, especially with the reduction/recording of official drawings.

Design Branch Statistics

Drawings completed or amended during the year	1,217
Total output of diazo prints	73,222
Items handled by Reprographic section:—	
" Copylin " camera	2,331
" Helioprinter " contact printer	209
5″ x 7″ camera	437
" Durst " enlarger	532
Vacuum printing frame	755
Miscellaneous	93
Total	4,357

Most of the operating diagrams for the new Control Room were completed during the year by the Drawing Office whilst the Mains Design Section issued 337 works orders, covering system improvements and reinforcement, and extensions to supply new residential, industrial and commercial consumers. There were also 94 street lighting works orders, the electrical design of street lighting works having been transferred to the Design Branch during this financial year. The issued works orders provided for an increase of 154 in the number of transformers connected to the system.

Street Lighting

The 868 street lights erected, fell short of the previous year. However, the use of high mast lighting is becoming more widespread. The installation of floodlighting for pedestrian crossings was greatly accelerated both on Council and Main Roads crossings. Work was carried out in the Balmoral area where a large portion of the old type series lighting was converted to parallel operation together with general improvement in the street lighting standard in the area.

A significant improvement in street lighting in the suburbs of Spring Hill, Fortitude Valley and Petrie Terrace was made by the erection of a total of 112 Mercury Vapour Lamps (89 at 400 watts, 23 at 250 watts) and 101 twin 20 watt lamps in these areas.

SUBSTATION BRANCH

The year showed most activity in 33kV substations, six being commissioned. There was a decline in 11kV transformer installations.

Strenuous efforts were made to complete work according to the bar chart programme and this was successful.

The completed Gregory Terrace and Bowen Bridge Road Substation 204 building as well as housing a major electrical installation, in connection with a 110/33kV bulk supply point, provides for an up-to-date operations control centre, office space and meeting room.

Another important substation completed in conjunction with Sub. 204 was Sub. 25 at Astor Terrace, City, which provides most necessary relief for 33kV City substations.

Relief was also given to the rapidly expanding outer suburbs of Moggill, Bald Hills and Eight Mile Plains, by construction of 33/11kV substations. An old 11kV substation at Newmarket was replaced by a modern 33/11kV type.

The expanding industrial Wacol area will be served by a 33/11kV substation constructed there.

Main 11kV substations decreased, statistically, as they were converted to take supply at 33kV. Commercial and Industrial substation works were generally on a par with previous years. But the number of distribution substations installed was noticeably down on the previous year.

Substation apparatus was comparatively free from faults. The major exception being the failure of some of an installation of 33kV outdoor oil minimum circuit breakers at Sub. 228 Archerfield. The manufacturer is now arranging for modification to these units. Some 33kV outdoor switchgear, which developed faults in the arc control devices, have, with one exception, had the modifications completed.

A 7·5/10MVA transformer failed under external fault conditions at Sub. 267 Geebung and was recovered for material. A 12·5MVA transformer failed at Sub. 295 Mansfield and was returned to the manufacturer under warranty. Earthing resistors were installed at six substations to reduce fault levels.

A high mast installation was completed at McCormack Place, City, and another is in progress at Sandgate.

Buildings and Constructions

Primarily the Construction Section was concerned with the construction of new substations and with extensions to existing substations. In addition, civil engineering and structural work was carried out for all branches of the Department.

Where possible the expert services of the Department of Works and the Building Surveyors Branch were utilised, particularly in new substations.

Commissioned substations are hazardous to workmen unfamiliar with such surroundings so a small day labour force was maintained for extensions and for minor work. Some work such as fencing was done by contract.

During the year 33/11kV zone substations were completed at Belmont (298), Newmarket (238), Moggill (290), Bald Hills (283), Wacol (265), and Eight Mile Plains (285). At these substations, brick buildings housing 11kV switchgear, batteries and toilet facilities were constructed by the Building Surveyors Branch. Concrete foundations for 33/11kV transformers were built by departmental staff. Smaller concrete footings were built and ring main units and ground transformers installed. Grounds were landscaped and planted with shrubs and grass. Internal roads were paved and provided with concrete kerb and channelling.

Brick extensions were constructed on the existing substation building at Taringa (280). Extensions to existing outdoor busbars to provide for additional switchgear, transformers and feeders were completed at Zillmere (253) and Geebung (267). Transformers were changed and placed on new foundations at Enoggera (251), Sunnybank (274) and Tingalpa (269).

One floor in Sub. 204 Gregory Terrace was furnished for office accommodation and two others were being prepared for further staff, particularly the Control Room.

The new depots at Wecker Road, Mansfield, and Alpha Terrace, Taringa, were completed, the latter being shared with the Department of Works. All buildings at these depots were erected by the Council's Building Surveyors Branch.

At Banyo Depot, Stage IV of the new building complex was almost completed, plans being prepared for the ultimate development of this depot.

Roadways and yards were graded and surfaced with asphalt at depots at Oxley, Taringa, Gregory Terrace Office, Sub. 274 Sunnybank and 242 Ashgrove

Renovation of an existing building commenced on the railway platform, Victoria Park, to accommodate underground mains staff evacuated from flood-prone buildings at Northey Street, Windsor.

Concrete foundations were installed and four high mast steel lights erected in McCormack Place and five at Sandgate Shopping Centre.

11kV/415V/240V substations were constructed in new high rise buildings in the inner city area and also in industrial and commercial complexes. Noteworthy examples included installations at Bradford and Kendall, Runcorn; Cairncross Dry Dock; Ansett Building; B.P. House; Reserve Bank; City Atvic Building; Woodland Woodworks, Geebung; Aviation House; M.I.M. House; Commonwealth Offices; Market Square, Sunnybank; C.S.I.R.O., St. Lucia; A.P.O. Building, Valley; 445, Edward Street; The Pavilion, City; Metropolitan Motors, Spring Hill; Centaur House; Ferro Constructions, Toowong; Pioneer House, Toowong; Perimeter Investments, Toowong; Volvo, Wacol; Brisbane Cricket Ground; H.M. Prison, Dutton Park; S.E.C.Q., Valley; Police Academy, Oxley; Savage & Co., Valley; Bandag, Wacol; 82, Ann Street, City; Subs. 7, 9, 10, 15 University of Queensland; High Mast Street Lighting, McCormack Place and Sandgate Shopping Centre; Four Seasons Ice Palace, Toombul; and Hammerson No. 2 Building, City.

TECHNICAL SERVICES

Workshops

The sheet metal section manufactured a wide variety of components including switchboard cubicles, substation enclosures, consoles for the new control room at substation 204, meter board surrounds, stock items, work for the transport section, roof mounted equipment boxes for the Works Department, and sundry items of special plant for various sections of the Department. Work for the Traffic Branch included the manufacture of 3,220 traffic and parking meter standards, extensive work on brackets and lights for pedestrian crossings as well as maintenance work at Wickham Terrace Car Park.

In the Electrical Section a 30 per cent. increase in manufacture of components for underground mains counteracted the fall off in volume of other items of stock and maintained loading of this section on the manufacturing side. Maintenance work included major repairs and rewinds of electric motors from quarries, etc., and included 39 motor rewinds and two mobile cranes from the Department of Water Supply and Sewerage On two occasions the flood waters causing damage to plant at Northey Street resulted in additional work. Maintenance and repairs to motors were carried out for the Health Branch.

In addition to carrying out general maintenance work the Carpenters Shop maintained and repaired several hundred extension ladders as well as manufactured new ladders. Repairs were also carried out to step ladders, pole working platforms, rescue kit boxes, and first aid boxes.

The body building section was again heavily loaded throughout the year, fitting out new leased vehicles, carrying out repairs and modifications to plant and vehicles, and building five new bodies for Control Room vehicles, two trailers for Underground Mains Section, fitting out of three vans for Test Branch, and modifications and fitting out of two new pole erecting cranes.

The following items were added to the plant fleet:—Three Mobile silenced air compressors, one Mobile change room, two Mobile jointers vans and three Mobile tool/toilet vans.

Value of stock items manufactured by the Workshop was $295,817 and required 20·8 per cent. of the Workshop man-hours

Street light control units manufactured decreased from $65,000 in 1970–71 to $42,000 in 1971–72. A decrease was also evident in the value of components manufactured for use by Overhead Mains aand general construction, the values being $109,000 in 1970–71 and $96,000 in 1971–72. Items manufactured for the Substation Section were valued at $20,850 and this also represented a small decrease over the previous year. Single pole transformer station steelwork decreased from $20,000 in 1970–71 to $12,000 in 1971–72. Meter board surrounds also decreased from the previous year.

However items manufactured for underground mains showed a substantial increase of approximately 30 per cent. on last year and were valued at $97,000. The increase in components being mainly in the production of joint boxes, disconnect boxes and concrete service pillars anad machining operations involved in these items absorbed an appreciable portion of the machine shop capacity

Fabricated steelwork was erected on site by the outside erection team. A considerable amount of the work was carried out at Perry Park in connection with the transfer of the Council's Building Construction Section from Northey Street, Windsor and also at Bowen Bridge Road Depot and Building 18 depot, Breakfast Creek in connection with the Underground Section transfer from Northey Street to these locations.

Installation Inspection

Approximately 150 new installations were connected each week. The major portion of these installations were in domestic premises and in addition to this type of inspection the 45 Installation Inspectors stationed at nine district depots were engaged in attending to inspection of alterations and additions to existing installations, check inspection, re-inspections, reconnection of supply and investigation of complaints of electric shocks.

The erection of multi-storey buildings in the inner City and to a lesser degree in the suburban areas continued; space and major commercial and industrial installations e g. Crest International Hotel, City; Ansett Gateway Inns, City, Institute of Technology, City; Mactaggarts, City; Atvic Pty. Ltd., City; Brookside Shopping Centre, Mitchelton; Cairncross Dry Dock; Volvo Pty Ltd, Wacol; Bandag Pty. Ltd, Rocklea; Police Academy, Oxley; and Greyhound Complex, Woolloongabba, also required the attention of Inspectors for lengthy periods.

The continued safety publicity advising consumers to ensure that their electrical installations complied with requirements, resulted in one thousand five hundred and nineteen check inspections being effected.

In order to carry out inspection of all categories, seventy-two thousand and seventy-three visits were made to consumers' premises and two hundred and fifty-nine thousand, one hundred and sixty-three miles were travelled.

Due to technological advancements in the electrical industry, the increasing use of complex automatic equipment and flammable agents in industrial installations, the responsibilities of the administrative and field staff have become more onerous as more detailed attention to the electrical requirements for special situations has been necessary.

Test Section

The Council's Testing Laboratories are located at depots at Breakfast Creek and Banyo. Tests on power system equipment such as transformers, switchgear and insulators are tested at Banyo whilst small items, approvals tests and protective equipment are tested at Breakfast Creek. All developmental work and field testing activities are also carried out at the latter location.

The volume of work on power system equipment is related to the growth of the Department and the following numbers of some of the items tested are of interest:—

Insulators	32,587
Transformers	620
Cables	303
Cables (Fault Locations)	48
Earthing Measurements (in the Field)	2,889
Chart Recording and Voltage Investigations	1,131
Insulating Oil Samples	2,188
Items of Switchgear	1,555
Lightning Arrestors	1,956
Protective Equipment Items	5,019

Fitting of fibre glass "coffin" to 33,000 volt oil filled cable joint.

Tests on appliances and articles covered by the Approvals Regulations were carried out for the State Electricity Commission. During the year 65 articles were tested, these including items such as sewing machines, vacuum cleaners, water heaters, electric ranges, luminaires, etc.

Because of the specialised testing facilities which are available at the Department's testing laboratories and which are generally not available elsewhere in Queensland, a number of tests were carried out for outside authorities such as Government Departments, consultants and manufacturers. Examples of these are high voltage tests on motors, safety tests on protective equipment, fault location measurements on underground cables tests on insulating oil and sound level tests on industrial equipment. During the year tests were carried out on a total of 757 items for outside authorities.

The Council Laboratories are registered to carry out tests in defined fields by the National Association of Testing Authorities. Reassessment of the Laboratories was recently carried out and registration in some of the fields of testing was extended.

As a service to the consumers of the Council, tests on appliances are carried out free of charge. Because of newspaper publicity on the safety aspects of electric blankets approximately 800 were brought in by consumers during the year for testing. About twelve per cent. of these were found to be faulty.

The acoustic type live line indicator which was developed by the section is now being manufactured and it is planned that it will replace all the existing neon type units at present in service. Development of the service polarity tester was also completed and its production has been placed in the hands of a manufacturer. With this device it is possible to determine the polarity of not only the service line but also of the installation. Tests are carried out at the mains connection box or other point at which the installation is to be connected. The test can be made on domestic installations with kilowatthour meters in circuit and access to the switchboard is not required.

A portable insulation tester is under development and other items of specialised test equipment have been built and placed in service.

Standardising Laboratory

Operations in this area were centered mainly on the improvement of testing techniques and with delivery of the remaining components of the A.C. watt transfer meter a high order of accuracy became possible in the major field of this laboratory which is the maintenance of accuracy of the energy meters installed on the system.

INSTALLATION SECTION

——	1970–71	1971–72
New Consumers connected	6,636	7,791
Additions and alterations inspected	19,610	17,881
Re-inspections of installations	16,673	15,720
Periodic inspections	8,270	7,342
Calls to Consumers' complaints	11,754	11,492

CONNECTIONS AND APPLIANCES

——	1970–71	1971–72
Number of motors installed	2,234	2,573
H.P. of motors installed	13,770	24,992
Ranges (excluding ovens and stovettes)	4,903	5,443

SYSTEM CONNECTIONS

Net Increase	Added 1971–72	Total June, 1972	Percentage Increase
Number of Consumers	4,015	229,244	1·8
Services erected	4,360	206,188	2·2
Storage water heaters	7,030	167,892	4·4
Meters connected	13,633	444,429	3·2
Poles erected	1,120	106,902	1·1
Maximum demand—kW	31,500	512,100	6·6

STREET LIGHTING

Net Increase	Added 1971–72	Total June, 1972	Percentage Increase
Number of lights	868	37,954	2·3
Connected load—kilowatts	133	5,048	2·7

MILEAGE OF MAINS

——	Added 1971–72	Total June, 1972	Percentage Increase
33kV overhead circuits	0·228	83·159	0·3
11kV overhead circuits	24·563	1,180·580	2·1
Low-voltage overhead circuits	24·170	2,245·650	1·1
33kV underground circuits	15·306	281·584	5·7
11kV underground circuits	22·445	389·705	6·1
Pilot cables	11·720	286·900	4·3
Low-tension underground cables	25·603	202·966	14·4

SUBSTATION SECTION

——	Added 1971–72	Total June, 1972
Number of main 33kV substations	6	58
Number of industrial 33kV substations	..	1
Number of main 11kV substations	1	27
Number of industrial 11kV substations	2	124
Number of commercial 11kV substations	4	37
Number of 11kV transformer stations	195	3,654
Number of 33kV transformers connected	9	121
kVA capacity of 33kV transformers connected	127,500	1,221,500
Number of 11kV transformers connected	209	3,840
kVA capacity of 11kV transformers connected	75,960	949,225

BRISBANE CITY COUNCIL—DEPARTMENT OF ELECTRICITY

Manager—
Mr. P. M. Molloy, B.E., M.I.E.Aust.

Address of Department—
Gregory Terrace, Brisbane, Q., 4006.

ENERGY PURCHASES, &c.
(for year ended 30th June, 1972)

Item	——
kWh purchased from S.E.A.	2,291,545,800
kWh purchased from R.E.B.'s	..
kWh purchased from other sources	..
Total kWh purchased	2,291,545,800
Cost/kWh purchased (c)	1·278
System maximum demand (kW)	512,100
System annual load factor (%)	50·9

SUBSTATION STEP-DOWN TRANSFORMER CAPACITY
(at 30th June, 1972)

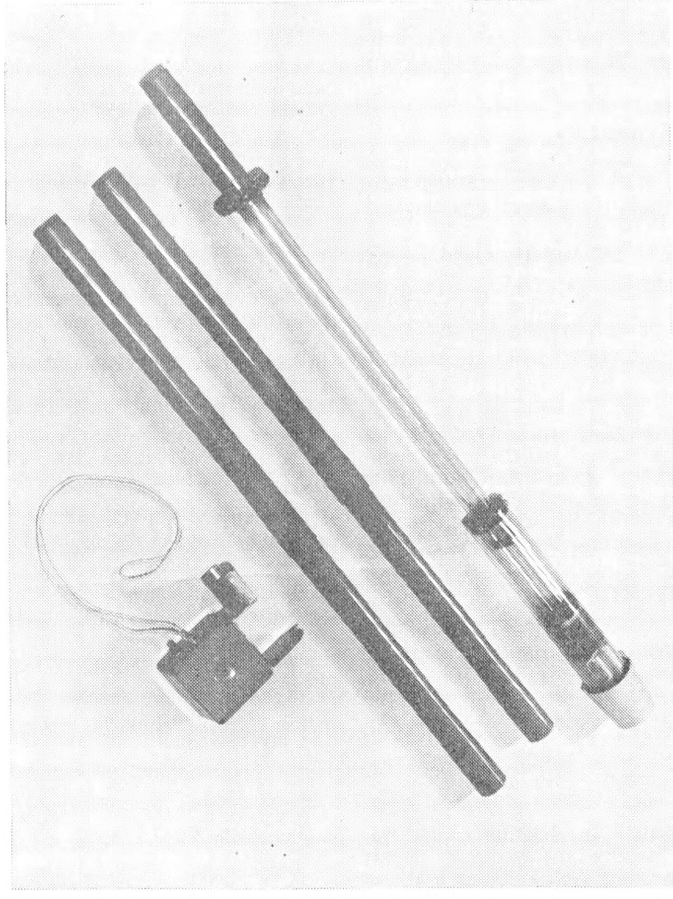
Type	Step-down Capacity kVA
132kV and above	..
33 to 110 kV	1,221,500
22kV and below including S.W.E.R.	949,225
Total	2,170,725

LINE MILEAGE
(at 30th June, 1972)

Designed Voltage	Circuit Miles
High Voltage—	
33kV	364·74
11kV	1,570·29
Sub Total H.V.	1,935·03
Low Voltage	2,448·61
Total	4,383·64

MISCELLANEOUS STATISTICS
(for year ended 30th June, 1972)

Item	——
Domestic sales (kWh)	959,966,994
Increase over previous year (%)	5·9
Total sales (kWh)	2,173,938,277
Increase over previous year (%)	7·4
Capital Expenditure ($m)	7·581
Total Revenue (Per Operating Revenue A/c) ($m)	44·966
Total Expenditure (Per Operating Revenue A/c) ($m)	42·954
Area of Operations (square miles)	385
Population of area (1971 Census)	699,371
Personnel Employed	1,762



Acoustic type live line indicator developed by the B.C.C. Department of Electricity's Test Section is now being manufactured and is being extensively field tested.

APPENDIX V

THE SOUTHERN ELECTRIC AUTHORITY OF QUEENSLAND

ANNUAL REPORT FOR THE YEAR ENDED 30th JUNE, 1972

SUMMARY

With the completion of the third of four 120MW units at Swanbank "B" Power Station further improvements in operating efficiency were achieved during the year and just under 90 per cent. of generated units came from the Swanbank Power Stations of the Authority.

The Authority's Power Station Development resources were largely committed to the Gladstone Power Station during the year and good progress was achieved. Major design work was nearing completion at the end of the year and construction is proceeding on site.

Major expansion is a feature of the Authority's own Transmission system with further development of the 275kV and 110kV networks. The 275kV link from Swanbank to Belmont was completed during the year and Victoria Park 110kV bulk supply project feeding the centre of Brisbane was completed.

Work is at an advanced stage on the Authority's Microwave Radio Communication System which will greatly benefit operations of the Authority's system and the more interconnected systems of the future.

Strengthening of the Distribution network proceeded during the year and a feature of Distribution operations was the outstanding efforts of the Authority's personnel in rectifying the widespread effects of Cyclone "Daisy" in February 1972 in the Authority's northern areas.

ASSET EXPANSION

The fixed assets of the Authority increased during the year by $33,849,000 compared with the corresponding figure last year of $23,475,000. The total fixed asset investment at the end of June 1972 was $343,767,000.

Increases for the year were as follows, the previous year's figures being shown in brackets:—

Generation	$6,833,000	($12,973,000)
Transmission	$19,977,000	($4,643,000)
Distribution	$5,323,000	($5,405,000)
Management	$1,716,000	($454,000)

The increase in generation assets is a nett figure after providing for writing off of obsolete power stations viz. Abermain, the Tennyson Package Station and the low pressure section of Bulimba "A". The large increase in Transmission assets reflects the value of work in progress on the Gladstone Transmission Line Project for which financial responsibility was transferred to the Authority during the year.

ADMINISTRATION

Loan Raising

The raising of $21,411,400 in Government guaranteed public and private loans was completed by 31st May, 1972. This amount included $12,635,900 for the Gladstone Transmission Line Project. The 1971–72 issue of S.E.A.Q. variable interest stock was oversubscribed, excess subscriptions being returned to applicants.

Management Training

During the year, a work study appreciation course was conducted by the Authority on behalf of the Electricity Supply Association of Australia, the first time such a course has been conducted in Queensland. The Authority's internal management training programme continued with over 100 officers and foremen attending formal courses in either Management or Principles of Supervision. Short courses were introduced in rapid reading, business letter writing and sales training.

Organisation and Methods

Activities in the area of organisation and methods were broadened to include analysis of certain activities in generation and distribution operations, in addition to continuation of work in the area of clerical efficiency.

BUILDINGS

Major projects in this field were the construction of new depots at Cleveland, Warwick and Redcliffe, providing improved facilities for all Authority operations in these centres and the surrounding areas, with room for expansion to cater for future development.

Special attention has been given to ensuring that the new premises are aesthetically pleasing and harmonise with the local scene. They include attractive modern amenities and recreation room facilities for employees as well as adequate and efficient working space.

A new office and retail showroom were installed to replace the old ones in rebuilt leased premises at Stanthorpe.

GLADSTONE PROJECT

Power Station

The Authority is acting as engineering and supervising consultants to the Commission for the Gladstone Power Station and the greater part of its Power Station Design and Development resources are engaged upon the project. Scheduled date for commercial operation of the first four 275MW sets is 24th March, 1975.

Design work associated with all major mechanical, electrical and civil works specifications is nearing completion and contracts to a total value of $98,608,000 had been awarded at the end of June, 1972.

On site at Gladstone work proceeded satisfactorily during the year on earthworks and major foundations despite minor delays due to wet weather and increasing incidence of industrial unrest.

Transmission Line

Work on the first 275kV transmission line from the Authority's South Pine Substation to the interconnection point with the Capricornia Regional Electricity Board at Gladstone is well advanced towards the scheduled commissioning date in late 1972. Work is well advanced also on the intermediate substations at Woolooga and Gin Gin and on the necessary extensions to South Pine Substation.

GENERATION CONSTRUCTION

Swanbank "B" Power Station

The third 120MW unit at Swanbank "B" Power Station was commissioned during the year.

The erection of the fourth and last 120MW unit is now well advanced, and is expected to be synchronised to the system on schedule in March, 1973.

GENERATION OPERATION

The maximum demand of 1007·2MW occurred on 21st June, 1972, showing an increase of only 6·2 per cent. over the previous year's demand of 948·6MW.

Units generated by the Authority's stations increased by 7·9 per cent. to 4,262,785,800. Station auxiliaries consumed 7·4 per cent. of these units and nett units delivered to the system were 3,947,179,927.

Swanbank "B" No. 3 Unit first generated power on 13th April, and full load of 120MW was attained on 2nd June, 1972.

A major outage occurred at Swanbank "B" where a shutdown of 3 weeks of No. 1 unit was necessary following the discovery of extensive dust erosion of reheater tubes. Erosion shields were fitted to reheater tubes of all three boilers to prevent further trouble of this nature.

Swanbank "A" and "B" stations generated 88·27 per cent. of the system units compared with 77 per cent. for last year. Overall plant efficiency increased from 30·97 per cent. for last year to 32·85 per cent.

Availability of Swanbank "A" improved to 94·26 per cent. from 87·6 per cent. last year and Swanbank "B" improved to 84·34 per cent. from 72·4 per cent. last year.

Bulimba "A" high pressure section did not operate during the year, but was held in reserve. Action was taken to write off the previously de-commissioned low pressure section of Bulimba "A" and also the Tennyson Package and Abermain Stations.

Satisfactory results are being achieved from the programme to modify the Brisbane area power stations to allow continued operation within the limits prescribed by the Clean Air Act for grit emission from chimneys. Replacement of original dust collectors by more efficient equipment was completed on five of the boilers in Bulimba "B". Similar work on a further three boilers is proceeding. At Tennyson a series of modifications has resulted in operation within the statutory limits.

BULK SUPPLY

Bulk Supply delivered to the Brisbane City Council at Tennyson "A" and Bulimba "A" and "B" Power Stations and at Stafford, Richlands, Nudgee, Belmont and Victoria Park Substations amounted to 2,251,545,800 units, an increase of only 4·7 per cent. over the previous year. Units supplied to the Brisbane City Council represented 56·85 per cent. of total units supplied to the system.

A new Bulk Supply Substation at Victoria Park was commissioned during the year. In addition a second transformer was commissioned at Belmont to provide firm capacity at this recently commissioned Bulk Supply Substation. Installation of a third 60MVA transformer at the Nudgee Substation is proceeding and it will be available for service at an early date.

Following feasibility studies of potential sites, the acquisition of land for the future Runcorn Bulk Supply Substation is reaching finality. This Substation is required to be commissioned by Winter 1974.

The Wide Bay–Burnett Regional Electricity Board purchased 75,994,100 units during 1971–72, an increase of 20·6 per cent. over the previous year. Maximum demand of the interconnection under normal weekday peak load conditions was 24·4MW an increase of 0·7 per cent. over the equivalent figure last year.

Units purchased by Dalby Town Council amounted to 53,819,000, representing an increase of 5·2 per cent. Maximum demand of 16·4MW was only 0·6 per cent. higher than the previous year's figure of 16·3MW.

TRANSMISSION

A further step was taken during the year in the development of the 275kV transmission system with the commissioning of the Belmont project. A double circuit 275kV transmission line is now in service from Swanbank "B" Power Station to the substation at Belmont, supplying two 200 MVA 275/110kV step down transformers.

At South Pine, the other major 275kV substation near Brisbane, work is well advanced on the construction of 275kV buswork and the installation of 275kV switching facilities. The substation has operated until now with two 275kV transformer feeders from Swanbank "B" Power Station. This new work, which will provide full switching facilities on the incoming 275kV line, the two 200 MVA 275/110kV transformers and the new 275kV transmission line to Gladstone, will be completed later in 1972.

The project for reinforcement of transmission capacity to the South Coast area is also well advanced. Conductor stringing is in progress on the single circuit 275kV steel tower transmission line from Swanbank "B" Power Station to Mudgeeraba. Construction work at the new Mudgeeraba switching station is proceeding to enable the line, initially operating at 110kV, to be connected to the existing system later in 1972.

A major 110kV transmission project was completed in November, 1971, with the commissioning of the new Victoria Park bulk supply substation in the central Brisbane area. 110kV supply was made available from Belmont substation over a section of double circuit steel tower line, a short run of double concrete pole lines down a suburban street, a double circuit steel tower river crossing and 110kV underground cables to two 120 MVA 110/33kV step down transformers at Victoria Park.

The new Lockrose 110/33kV step down substation in the Authority's Western area was commissioned during the year. Two 30 MVA transformers are in service at this station.

At Brendale, near South Pine, a further 110kV project was completed with the commissioning of two 60 MVA 110/33kV transformers at the new substation in November, 1971. This station will cater for the rapid suburban development occurring in the area north of the Brisbane City boundary.

Step-down transformer capacity in the Southern District was increased by the replacement of two 15 MVA units with two new 60 MVA units at Beenleigh substation to cater for rapid load growth in that area.

The Authority now has 1,172 circuit miles of 275, 132 and 110kV lines in service compared with 1,082 miles for the previous year. The length of 275kV feeders in service increased to 111 miles.

SYSTEM COMMUNICATIONS

Work was taken to an advanced stage during the year upon the Authority's microwave communications system. This system will provide communication links for voice contact, vital operations data and remote control signals between important generation and transmission centres. Initially the system will link Swanbank, Tennyson and Middle Ridge Power Stations, Belmont, South Pine and Mudgeeraba substations. Later the system will be extended to cover the interconnection to Gladstone Power Station.

DISTRIBUTION

Construction of the new line of 110kV single wood pole design between Warwick and Stanthorpe was completed during the year and the line energised at 33kV, providing a second 33kV feed into the Stanthorpe area.

A 33kV feeder has been constructed from Brendale substation to the Arana Hills 33/11kV substation on the northern boundary of Brisbane. This feeder will duplicate the existing 33kV radial supply to the station.

A 7 mile section of 33kV feeder from the new Lockrose substation to Tarampa in the Western area was brought into service to supply power from the new 110/33kV substation into the existing 33kV system. Work is in progress on a further 17·5 mile section of new 33kV line from Lockrose to Paddy Gully.

A new 33kV line was constructed between Tewantin and Noosa Heads on the North Coast and the line has been energised initially at 11kV.

Work is almost complete on the new 33/11kV substation at Capalaba, incorporating underground incoming and outgoing connections and replacing the existing obsolescent structure.

Increased transformer capacity was provided at Woodford, Arana Hills, Labrador and Redbank substation. These increases have added 26,500kVA of transformer capacity to the system, bringing the total installed capacity to 698,825kVA.

A heavy demand for 11kV and L.V. reticulation has occurred in areas adjacent to the Brisbane City boundary as the result of rapid residential development.

Underground residential distribution schemes have again been a feature in new residential subdivision on the Gold Coast, and requests for this form of distribution are now being received from other areas.

Rural development has been concentrated predominantly on the Darling Downs where 274 new 11kV/LV pole transformer stations were erected. Work is in progress on an 11kV extension in the Warwick area involving a total of 20 pole transformer stations.

The total number of 11kV/LV pole transformer stations in service through the Authority increased by 625 to 12,415 with a total capacity of 807,044kVA.

The number of consumers supplied by the Authority increased by 6·8 per cent. to 175,474.

SYSTEM PERFORMANCE

System performance has been satisfactory throughout the year.

Cyclone "Daisy" brought high winds and flooding rains to the Gympie and Nambour Districts on the night of Friday, 11th February, 1972. At the peak of the cyclone more than half the consumers in these areas were without supply but restoration work was completed on the Saturday and Sunday following the cyclone.

ASSISTANCE TO TOWNSVILLE REGIONAL ELECTRICITY BOARD

Following cyclone "Althea" which caused widespread damage in the Townsville area over the Christmas-New Year holiday period, the Authority supplied men and materials to assist in restoration work. A number of the Authority's distribution maintenance staff travelled to Townsville and worked for five days assisting the Townsville Regional Electricity Board in restoration of supply.

MARKETING

In a move designed to expand the activities of the Authority directed towards promotion of the use of electricity, a marketing group was established in the year under review. All marketing and load promotion activities of the Authority have been consolidated within this group, which will embrace the present activities of appliance promotion, appliance merchandising and the technical advisory service. In addition the group has specialised staff engaged on tariff investigations and marketing research.

The present technical advisory function is being expanded to provide a wider range of services. These are at present highly developed in rural applications and domestic electric cooking. New fields will be commercial and domestic air conditioning, commercial electric lighting and domestic deep-freezing. Substantial training of staff in the technology of the new fields is necessary and is in hand.

This development within the Authority will ensure that it is equipped to meet the challenges of change and competition in the services it provides to consumers.

CONCLUSION

The major features of a busy year for the Authority have been the progress achieved with design and supervision of the Gladstone Project and increased emphasis on Marketing and Load Promotion.

The co-operation of the Commission in these matters and in other phases of the Authority's activities during the year has been much appreciated.

COMPOSITION OF THE SOUTHERN ELECTRIC AUTHORITY OF QUEENSLAND

Chairman and Chief Executive Officer
Mr. J. E. G. MARTIN, C.B.E., D.S.O., E.D., B.E.

Members
Mr. J. H. HOARE, Solicitor (Deputy Chairman);
Mr. F. B. CHARLTON, Consultant Sharebroker;
Mr. A. T. FULLAGAR, A.C.I.S., A.A.S.A., A.A.U.Q.;
Mr. W. R. HARTLAND, F.C.A.;
Mr. G. G. L'ESTRANGE, M.I.E.Aust.;
} Representatives of Variable Interest Stockholders.
Mr. G. D. LEE, F.R.I.P.A.;
Mr. E. D. MURRAY, M.C., B.E., F.I.E.E., F.I.E.Aust., F.A.I.M. (Commissioner for Electricity Supply).

SENIOR TECHNICAL AND ADMINISTRATION STAFF

Manager—Engineering and Chief Engineer
I. DENNIS, B.E., M.I.E.Aust.

Manager—Administration
A. R. KRUGER, B.A., B.Econ.

Manager—Planning and Development
T. MCLEAN, B.E. (Hons.), B.Com., F.I.E.E., F.I.E.Aust., F.A.I.M.

Manager—Finance and Secretary
J. G. SPILLER, F.A.S.A., F.C.I.S., F.A.I.M., F.I.P.M.

NOTE—Mr. Martin retired from the Authority's service as from 30th June, 1972, and the following consequential appointments have since been made:—

Chairman and Chief Executive Officer
I. DENNIS, B.E., M.I.E.Aust.

Manager—Engineering and Chief Engineer
C. T. MCCORKELL, M.E.

ADDRESS OF AUTHORITY: 62-80 Ann Street, Brisbane.

SOUTHERN ELECTRIC AUTHORITY

GENERATION STATISTICS
(for year ended 30th June, 1972)

Item	—
Installed capacity (kW)—Thermal	1,331,000
Hydro	..
Total	1,331,000
kWh generated—Thermal	4,262,785,840
Hydro	..
Total	4,262,785,840
kWh used in works	315,605,913
kWh sent out	3,947,179,927
Maximum demand (kW) (Generated)	1,007,200
Annual Load factor (%) (Generated)	48·3
Coal consumed (tons)	1,891,367
Calorific value of coal (BTU/lb.)	10,400
Furnace oil consumed (tons)	15,913
Calorific value of furnace oil (BTU/lb.)	18,500
Diesel oil consumed (tons)	1,921
Calorific value of diesel oil (BTU/lb.)	18,500
Overall thermal efficiency (%)	32·9
Overall fuel cost/kWh generated (c.)	·328

ENERGY PURCHASES, &c.
(for year ended 30th June, 1972)

Item	—
kWh purchased from N.E.A./S.E.A.	..
kWh purchased from R.E.B.'s	..
kWh purchased from other sources	12,878,600
Total kWh purchased	12,878,600
Cost/kWh purchased (c.)	·573
System maximum demand (kW)—Excluding bulk supply	407,700
System annual load factor (%)—Excluding bulk supply	43·0

LINE MILEAGE
(at 30th June, 1972)

Designed Voltage	Circuit Miles
High Voltage—	
275kV	110·00
132kV	244·00
110kV	942·00
33kV	1,362·00
11kV	7,297·00
Sub Total H.V.	9,955·00
Low Voltage	4,392·00
Total	14,347·00

MISCELLANEOUS STATISTICS
(for year ended 30th June, 1972)

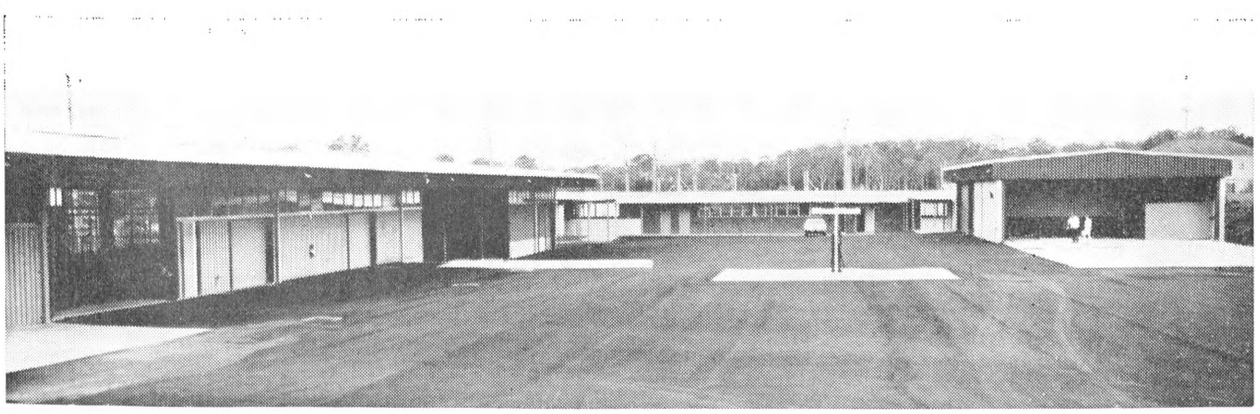
Item	—
Domestic sales (kWh)	596,221,114
Increase over previous year (%)	12·9
Total sales (kWh)*	1,285,969,023
Increase over previous year (%)	9·1
Capital Expenditure ($m)	39·912
Total Revenue (Per Operating Revenue A/c) ($m)	61·460
Total Expenditure (Per Operating Revenue A/c) ($m)	59·776
Area of Operations (square miles)	16,750
Population of area (1971 Census)	463,850
Personnel Employed	3,454

* In addition bulk sales of 2,421,358,900 kWh were made to other electric authorities.

SUBSTATION STEP-DOWN TRANSFORMER CAPACITY
(at 30th June, 1972)

Type	Step-down Capacity kVA
132kV and above	1,040,000
33 to 110kV	2,343,825
22kV and below including S.W.E.R.	807,044
Total	4,190,869

Session in progress at a work study appreciation course conducted by the Southern Electric Authority on behalf of the Electricity Supply Association of Australia.



S.E.A.'s new Cleveland depot, just prior to its opening. This is one of several new depots recently opened in the Authority's various districts.

APPENDIX VI

DALBY TOWN COUNCIL—ELECTRICITY DEPARTMENT

CHIEF ENGINEER'S ANNUAL REPORT, JUNE, 1972

His Worship the Mayor and Aldermen,
Dalby Town Council,
Dalby. Q. 4405.

GENTLEMEN,—I have pleasure in submitting the Annual Report of the Electricity Department of this Council—the Dalby Electric Authority—containing a review of the year's operations.

ADMINISTRATION

The membership of the Electricity Committee is as follows:—

Alderman R. W. Aland, Chairman;

Alderman F. E. Edgar;

Alderman N. Nearhos.

The Mayor, Alderman H. S. Williams, is an *ex officio* member of this Committee and has attended all meetings. Alderman J. F. O'Sullivan attended one meeting in place of Alderman N. Nearhos and Alderman T. D. A. Wilson attended five meetings in place of Alderman R. W. Aland and Alderman F. E. Edgar.

There has been no change in the membership of the Committee during the year.

Senior Staff

The Senior Staff comprises—

The Town Clerk, Mr. H. B. Edmonds;

Chief Engineer, Mr. A. E. Stewart;

Deputy Chief Engineer, Mr. K. G. Hilless.

During the year, Mr. H. B. Edmonds was appointed Town Clerk in place of Mr. P. F. Thorley who resigned to take up a position in Brisbane.

STAFF

In the clerical and administration staff, there were four resignations and six appointments leaving a total of 19 in this section at the end of June.

In the Distribution section there were four resignations and six appointments, leaving a total of 46 in this section at the end of June. Four electrical trades assistants are studying for their linesman's qualifications, two of which should be ready to enter the Linesman's Training School in 1972–73 and the others the following year.

The overall number of employees at the end of June, 1972 was 65, this compares with a total of 61 at the commencement of the year. Salaries and wages totalling $307,187 were paid out during the year.

COMBINED SHIRES MEETING

In order to acquaint the councillors of the four shires—Wambo, Chinchilla, Murilla and Tara—of the progress of electrical development in their areas, two meetings of the combined shires were held, one in Miles in September and the other in Chinchilla in June. On each occasion the shire representatives were given a progress report of works in hand and works which were listed for future attention, the financial situation of the Electric Authority, and the proposed changes in depot personnel. Questions were answered on various aspects of the Authority's work and it is considered that the meetings resulted in a better understanding of the problems associated with an Electric Authority.

TRANSMISSION SYSTEM

System Augmentation

The system demand increased by 1·8 per cent. over the 1970–71 peak. This is a small increase and follows the pattern of the last four years. The economic recession in the rural areas, plus the effect of the drought in the previous three years and the fact that the area is now almost fully electrified, have all combined to keep the growth rate down.

At the present growth rate it will be possible to delay the second stage of the augmentation programme for a few years. However, this will have to be reviewed regularly to ensure that the next stage is ready for service when required.

Operation

The whole of the supply area including the Town of Dalby was interrupted on two occasions during the year. In January, a severe storm damaged lines in the Warra area and operated the main supply breaker. This interruption lasted for 52 minutes over the whole area. In March, a faulty busbar insulator interrupted the whole supply area for 47 minutes. Apart from these two instances, supply interruptions were localised as follows:—Chinchilla—two hours fifteen minutes; Miles—seven hours twenty-nine minutes; Jandowae—one hour fifty-five minutes; Tara—one hour four minutes; and Meandarra—three hours seven minutes.

Maintenance

During the year, one pole was replaced due to storm damage.

Five hundred and ten poles were inspected and treated with creosote.

Thirteen miles of line were treated with hormone for the purpose of killing regrowth.

Routine patrols were carried out over the whole length of the system.

Storm activity caused the failure of one 2MVA 33kV regulator, one 500kVA 33/11kV transformer and one 200kVA 33/11kV transformer.

DISTRIBUTION SYSTEM

Operation

During the year there were 21 supply interruptions on the 11kV and 6·6kV distribution lines. Ten were due to storm activity, six due to other causes and five due to unknown causes. On the S.W.E.R. System, there were 47 supply interruptions, 23 of which were caused by flying foxes in the northern part of the area, seven due to storm damage, ten to other causes and seven to unknown causes.

For approximately six weeks in November and December, there were a large number of calls to a few areas in the northern portion of the region to attend to faults caused by flying foxes. These faults were caused by the foxes hanging on the horns of the dropout fuses and wrapping their wings around the earthed bracket. At the time when they left the district, we were having some success with insulating the bracket.

The number of S.W.E.R. fuse operations increased from 157 in 1970–71 to 253 in 1971–72 mainly due to flying fox activity. The number of operations was 102 during 1969–70.

Distribution transformer failures totalled 13 made up of one 33kV, two 6·6kV and 11kV and ten 12·7kV S.W.E.R. This compares with a total of 23 the previous year.

Construction

This year saw the completion of a programme of expansion into the rural section of our supply area using 12·7kV S.W.E.R. This programme commenced in 1960 with the erection of the first line into the foothills of the Bunya Mountains and has now covered the whole of the supply area that is capable of being supplied within normal economic limits. The first S.W.E.R. lines were built for 12·7kV and later when the need for limited three phase supply became apparent, 22kV isolated three phase systems were built and used as the basis of 12·7kV single wire spurs for those loads where three phase was not necessary. Since 1960 we have built 96 miles of 22kV three phase and 2,498 miles of 12·7kV S.W.E.R.

The major schemes completed during the year ended the 30th June, 1972 are:—

Rywung—65·5 miles—1 Isolating substation, 36 Distribution substations;

Baking Board—22·5 miles—1 Isolating substation, 15 Distribution substations;

Kogan Beelbee—16·0 miles—1 Isolating substation, 10 Distribution substations;

Kumbarilla Weranga—66·5 miles—1 Isolating substation, 27 Distribution substations;

Total—170·5 miles—4 Isolating substations, 88 Distribution substations.

During the year 128 distribution substations of 1,650kVA total capacity were connected to the system. This compares with 106 distribution substations and 785kVA capacity for the previous year.

At the 30th June, 1972, the total number of substations in service was:—

16—33kV step-down substations 17,000kVA total capacity (excluding S.W.E.R. Isolating substations);

35—S.W.E.R. Isolating substations 3,900kVA total capacity;

2,494—Distribution substations 32,575kVA total capacity.

Maintenance

Eight poles were replaced during the year. Three of these were due to storm activity and five were due to dry rot. During the previous two years the number of poles replaced were 20 and 15.

Very little regrowth control was carried out during the year and the only spraying completed was 56 miles on Burra Burri and 16 miles on North Dulacca. We have just made up two trailer mounted spraying units each of 200 gallon capacity, for use in the Tara and Chinchilla Areas. The units will be permanently attached to the outside depots and will assist in keeping regrowth under control.

Meter Testing

The number of meters tested this year is slightly down on the previous year's figure due to the employee in this section being used for other duties. A total of 558 new meters was tested and checked for accuracy before being placed in service, 531 meters were reconditioned, cleaned, lubricated and recalibrated before being returned to service and twelve meters were destroyed by fire.

GROWTH OF UNDERTAKING

The additions for the current year in the line mileage at the various voltages are as follows:—

	Miles
33kV	0·2
22kV	2·0
12·7kV	184·9
11kV	4·3
6·6kV	1·9
L.T.	1·2

The growth of the transmission and distribution lines over the last five years is indicated in the following:—

Voltage	30th June 1968	30th June 1969	30th June 1970	30th June 1971	30th June 1972
33kV ..	285·5	292·5	293·9	293·9	294·1
22kV ..	74·2	74·2	94·2	94·2	96·2
12·7kV ..	1,795·3	2,018·4	2,122·6	2,313·2	2,498·1
11kV ..	262·7	263·7	269·6	275·2	279·5
6·6kV ..	68·6	70·1	70·1	71·2	73·1
L.T. ..	184·5	186·9	189·1	189·8	191·0
All Voltages	2,670·8	2,905·8	3,039·5	3,237·5	3,432·0

The total number of consumers supplied at the end of each year over the last five years is as follows:—

Year Ended	Dalby	Rural	Total
30th June, 1968 ..	2,865	5,235	8,100
30th June, 1969 ..	2,945	5,433	8,378
30th June, 1970 ..	3,070	5,297	8,367
30th June, 1971 ..	3,020	5,289	8,309
30th June, 1972 ..	3,083	5,429	8,512

STREET LIGHTING

During the year seven new street lights were erected in Chinchilla bringing the total in the whole area to 799.

SAFETY

This Council maintained a good safety record during the last 12 months being third on the E.S.A.A. Frequency Rate and seventh on the Severity Rate of Accidents. With the objective of maintaining this record a Staff Safety Committee was formed on October 16th, 1971. This Committee meets every two months for approximately one hour, and is comprised of one representative of each of the following:—Mechanics, Linesmen and Electrical Trades Assistants. The representation is changed each six months so that all employees will serve a period on this committee. Minutes are taken and circulated to all employees.

Regular training is given to all employees in pole rescue and resuscitation methods, and to assist this training, an AMBU Manikin has just been purchased.

Each six months all protective safety equipment is inspected and tested. This includes link sticks, mats, test sticks, gloves, body belts, platforms and ladders.

One fatal accident, four minor accidents and one accident involving a Council staff member were reported to the State Electricity Commission during the year. This compares with five last year and four the previous year.

LOAD PROMOTION

This year saw a change of emphasis in the activities of the Load Promotion Section from Irrigation to Pig Farming. The decrease in the Irrigation Section is principally due to the refusal of the Department of Irrigation and Water Supply to issue any further licences in the Condamine Basin. A large number of farmers are building modern piggeries and this section is kept busy advising farmers on the application of electricity in this industry.

Irrigation

Four consumers being supplied on various S.W.E.R. schemes were advised of the costs of using 15 h.p. turbine pumps for spray irrigation, and one consumer connected a trickle irrigation system in a vineyard.

Pig Farming

There have been 55 recommendations made to Pig Farmers concerning the installation of heating pads and for grain mixing and crushing. A total of 260 heating pads have been installed, and a further 460 are expected to be installed in the near future. Detailed investigations are being undertaken at two piggeries to determine actual costs, in this area, of the various activities associated with the pig industry. We will then be in a better position to advise farmers.

Domestic

Once again through the courtesy of the Southern Electric Authority, we were able to hold four successful cooking demonstrations. These were held in Miles, Chinchilla, Macalister and Dalby. These demonstrations help to promote electricity in the home, and there is no doubt that since the first demonstrations were held several years ago, the use of electricity has increased considerably in the Domestic field.

This year 260 electric ranges were installed compared with 203 for the previous year, 280 hot water systems compared with 234, and 1,025 h.p. of electric motors compared with 1,018. A total of 135 special purpose outlets were connected, the majority of these will be used for 3-5 h.p. motors for grain augers and mixers.

COMMUNICATION

Tenders were accepted for the erection of two new repeater stations, one near Chinchilla and the other near Meandarra, to maintain radio telephone communications throughout the major portion of our reticulated supply area. The erection of this equipment should be completed by the end of August, 1972.

This installation has been delayed for some years in an attempt to obtain a better solution to the problem and it is pleasing to report that while the original proposal envisaged the use of four repeater stations, the final design required the use of only two repeater stations, thus making a considerable cost saving.

The distances from Dalby to the south-western extremity of our area is 120 miles and to the north-western extremity is 118 miles with 100 miles between these two points.

VEHICULAR REPLACEMENTS AND ADDITIONS

There was very little movement in the vehicle situation during the year. Three sedans and one station sedan were replaced in accordance with standard policy. One new five-ton

truck was purchased and fitted with an Elevating Work Platform. The total fleet consists of 32 vehicles and comprises:—

3 Sedans; 1 Light Sedan; 8 Heavy Duty Utilities; 4 Four-Wheel Drive Utilities; 1 One and A-Half Ton Truck; 1 Five Ton Truck and Elevating Work Platform; 4 Station Sedans; 3 Two Ton Four Wheel Drive Trucks; 1 Three Ton Four Wheel Drive Blitz as a Winch Truck; 4 Four Ton Trucks; 1 Twelve Ton Semi Trailer Unit; and 1 Four Ton Four Wheel Drive Truck and Borer/Erector Unit.

TARIFFS

The tariff increase forecast in the last Annual Report was gazetted in November and became effective from the beginning of March. This new tariff provided for a theoretical increase of 8 per cent. which will not be fully realised owing to the effect of guarantees, etc. Anticipated rises in the Bulk Supply Charges and Wages and Material costs will absorb the increases and will bring forward the next tariff review.

STATISTICAL INFORMATION

Bulk Supply

The total number of units purchased during the year was 53,819,000 at a total cost of $817,192 which represents an average purchase cost of 1·5184 cents per unit. This compares with an average purchase cost of 1·5789 cents per unit for the previous year and 1·4930 cents per unit; 1·4945 cents per unit; 1·3396 cents per unit; 1·4047 cents per unit for each of the previous four years.

The growth in the number of units purchased for the year is 5·3 per cent. This compares with 2·3 per cent. last year and 4·9 per cent. the previous year. The system load factor for the year was 37·4 per cent. This compares with 35·6 per cent. and 37·7 per cent. for each of the previous two years.

Electricity Sales

A total of 47,115,460 units was sold during the year as follows:—

ELECTRICITY SALES 1971–72

Electricity Sales in Rural and Dalby areas of supply under the various tariffs were as follows:—

Tariff	Units Sold		
	Rural Area	Dalby	Total
Domestic	10,817,662	5,933,213	16,750,875
Water Heating ..	5,452,781	4,619,261	10,072,042
Churches, Schools, &c.	277,347	192,236	469,583
Commercial Lighting	585,850	929,573	1,515,423
Commercial Power ..	4,318,516	4,084,198	8,402,714
Farm Lighting and Power	5,550,627	49,681	5,600,308
Industrial Rate ..	1,025,506	2,893,382	3,918,888
Street Lighting ..	83,915	113,334	197,249
Irrigation	188,558	..	188,558
	28,300,762	18,814,878	47,115,640

The Levies for the above sales were:—

Tariff	Amount Levied		
	Rural Area	Dalby	Total
	$	$	$
Domestic	309,032.93	172,653.63	481,686.56
Water Heating ..	101,145.50	80,067.99	181,213.49
Churches, Schools, &c.	12,621.23	9,890.92	22,512.15
Commercial Lighting	61,622.29	82,149.10	143,771.39
Commercial Power ..	168,378.66	135,216.76	303,595.42
Farm Lighting and Power	290,132.42	1,632.75	291,765.17
Industrial Rate ..	20,965.49	64,157.06	85,122.55
Street Lighting ..	9,259.99	8,910.37	18,170.36
Irrigation	3,596.43	..	3,596.43
	976,754.94	554,678.58	1,531,433.52

Rural Area	28,300,762
Dalby Area	18,814,878
	47,115,640

The amount billed for each area was as follows:—

Rural Area	$976,754.94
Dalby Area	$554,678.58
	$1,531,433.52

From the above figures, it will be noted that 6,703,360 units have been lost. These units supply losses in transformers and transmission lines. The losses amount to 12·5 per cent. of the units purchased. This figure is 0·2 per cent. higher than the losses last year.

FINANCIAL STATEMENT

Annual receipts from the sales of electricity for the year totalled $1,475,258. This represents an increase of 4·8 per cent. over the revenue received in the previous year.

A total of $13,811 from revenue funds was invested in Capital works during the year. Of this amount a total of $1,116 was invested in motor vehicles, $1,879 in test equipment, $4,150 in plant and equipment, $3,977 in office furniture and equipment and the balance in building alterations.

Operating expenditure for the year was $1,578,286.

Item	Expenditure	Percentage of Total	Cost per Unit Sold
	$		Cents
Purchased electricity	817,192	51·77	1·734
Capital charges, Transmission and distribution (nett)	415,015	26·30	0·883
Transmission and distribution maintenance	171,923	10·90	0·365
Administration and management	151,830	9·62	0·322
Miscellaneous (including Capital Expenditure)	22,326	1·41	0·046
	1,578,286	100·00	3·350

Loan Funds

The loan fund expenditure for the year amounted to $384,795 which leaves a carryover of approved funds of $86,739. There was a considerable turnover of stores during the year and at the close of the year the value of stock on hand was $298,523 which is $21,269 less than at the same time last year.

CONCLUSION

This year saw the completion of all major distribution schemes in the rural development programme which commenced with the introduction of single wire earth return lines in 1960. The only work to be completed is one small scheme in the Tara Shire.

I wish to acknowledge the assistance given by the Southern Electric Authority of Queensland in providing special services to assist the Council at various times during the year.

It was with regret that we said farewell to Mr. H. Neil Smith, the former Commissioner for Electricity Supply who assisted the Council so greatly with the development of the Western Downs Region, and it is with much pleasure that we welcome Mr. E. D. Murray as Commissioner. Mr. Murray has already visited Dalby and met the Council, and we look forward to a continuance of the advice and assistance previously given by Mr. Smith. The staff of the State Electricity Commission have as always been ready and willing to discuss the various problems of this Authority and to give much needed advice.

The Australian Broadcasting Commission has, as in the past, provided free of charge a means of advising consumers of anticipated supply interruptions. The press, during the year, has adequately covered the Department's activities and have assisted electrical education activities by publishing articles made available by the Electrical Education Council.

I wish to acknowledge the interest and assistance received from the Chairman of the Electricity Committee—Alderman R. W. Aland—and the Mayor, Alderman H. S. Williams—also the valuable advice received from the Town Clerk, Mr. H. B. Edmonds—in administrative matters.

It is felt that our staff have performed their duties over the year in a loyal and efficient manner. They have done much to establish a good standard of service to our consumers and it is felt that their zeal has contributed in no small way to the year's successes.

Yours faithfully,

A. E. STEWART, Chief Engineer.

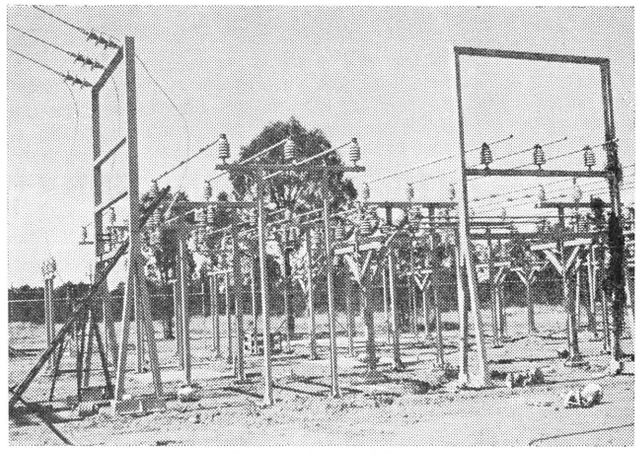
DALBY TOWN COUNCIL—ELECTRICITY DEPARTMENT

Chief Engineer—

Mr. A. E. STEWART, Dip. Eng.

Address of Department—

133 Cunningham Street, Dalby, Q. 4405.



New Substation at Miles

ENERGY PURCHASES, &c.
(for year ended 30th June, 1972)

Item	——
kWh purchased from S.E.A.	53,819,000
kWh purchased from R.E.B.'S	..
kWh purchased from other sources	..
Total kWh purchased	53,819,000
Cost/kWh purchased (c.)	1·518
System maximum demand (kW)	16,400
System annual load factor (%)	37·4

SUBSTATION STEP-DOWN TRANSFORMER CAPACITY
(at 30th June, 1972)

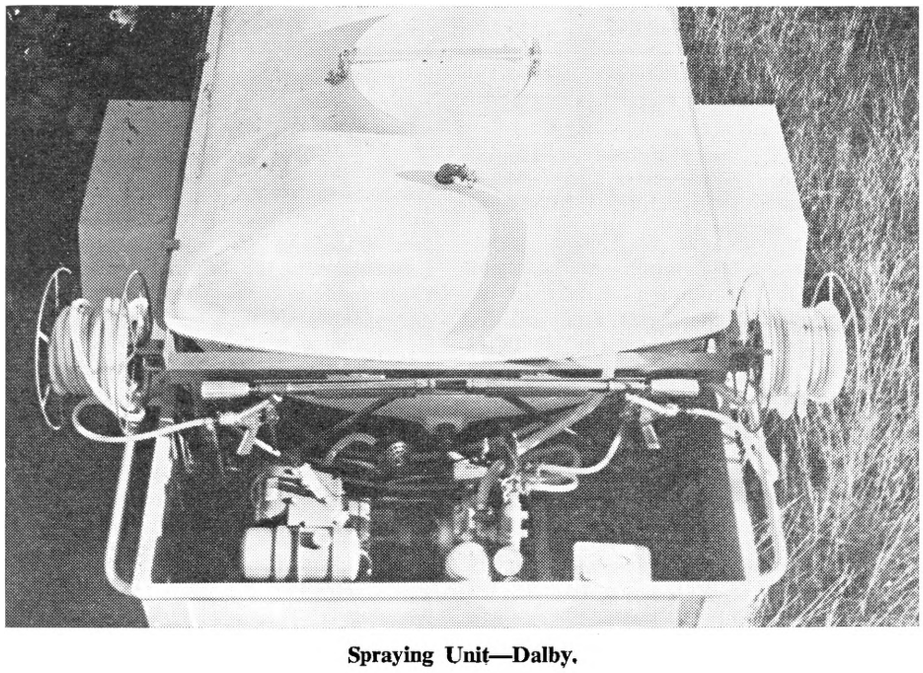
Type	Step-down Capacity kVA
132kV and above	..
33 to 110kV	17,000
22kV and below including S.W.E.R.	36,475
Total	53,475

LINE MILEAGE
(at 30th June, 1972)

Designed Voltage	Circuit Miles
High Voltage—	
33kV	294·10
22kV	96·20
11kV	279·50
6·6kV	73·10
S.W.E.R.—12·7kV	2,498·10
Sub Total H.V.	3,241·00
Low Voltage	191·00
Total	3,432·00

MISCELLANEOUS STATISTICS
(for year ended 30th June, 1972)

Item	——
Domestic sales (kWh)	26,822,917
Increase over previous year (%)	6·8
Total sales (kWh)	47,115,640
Increase over previous year (%)	5·0
Capital Expenditure ($m)	·409
Total Revenue (Per Operating Revenue A/c) ($m)	1·569
Total Expenditure (Per Operating Revenue A/c) ($m)	1·625
Area of Operations (square miles)	12,220
Population of area (1971 Census)	26,623
Personnel Employed	65



Spraying Unit—Dalby.

APPENDIX VII

THE WIDE BAY-BURNETT REGIONAL ELECTRICITY BOARD

ANNUAL REPORT FOR THE YEAR ENDED 30TH JUNE, 1972

The Commissioner for Electricity Supply,
State Electricity Commission,
Brisbane.

SIR,—We have pleasure in presenting to you the Twenty-seventh Annual Report and Financial Statements of The Wide Bay-Burnett Regional Electricity Board for the year ended 30th June, 1972.

In presenting this report we would like to place on record the Board's appreciation of the help and guidance which you, Mr. H. Neil Smith, the ex-Commissioner, your Deputy Commissioners and Officers of the Commission have given to this Board during the year.

For quick reference a summary of this year's activities and a comparison with last year's figures are set out below:—

	1970/71	1971/72
kWh sold	172,669,723	183,839,245
kWh generated—purchased	203,745,600	214,715,288
System maximum demand	54·64 MW	52·61 MW
Consumers connected to supply	41,034	41,590
Miles of line in service	6,041	6,257
Number of substations in service	4,719	4,867
Number of employees	450	434
Receipts—		
Sales of Electricity	$5,272,334	$5,851,962
Other	78,484	84,703
Total	$5,350,818	$5,936,665
Expenditure—		
	$	$
Generation	1,350,713	1,473,094
Purchase of Electricity	1,144,470	1,210,267
Distribution	831,870	947,177
Management	469,453	521,405
Loan Commitments	1,813,673	1,849,897
Miscellaneous	148,645	126,511
Total	$5,758,824	$6,128,351
Result—		
Cash deficit	$408,006	$191,686
Expenditure on Capital Works	$1,373,013	$1,018,967

From operating point of view the year under review was fairly normal. Although the total rainfall in the region was a little above average the distribution of rain in the early part of 1972 was such that there was little call for irrigation. In spite of this, our sales of electricity, at 183·8 million kWh, were very close to the estimate and showed a reasonable increase of approximately 6·5% over the previous year. One close and several small cyclones caused some damage to the transmission and distribution systems and increased costs for those sections. Overall, however, the works programme was carried out as planned and costs were generally in keeping with Budgets.

As in the previous year, a fair proportion, approximately 40 per cent., of our Capital Works Programme was devoted to augmenting and reinforcing supply. Although the growth rate is not consistent over the whole of the region, demands in some parts are still rising and it is necessary to carry out this augmentation, not only to keep pace with present demands, but also to make provision for the future. Parallel with this work, we are, wherever possible, providing an alternative supply by sectionalising and creating "rings" so that an interruption in one area will cause as little inconvenience as possible. This aspect is of increasing importance as consumers place more and more reliance on electricity as the main source of energy.

For your information the following comments are made on the various activities of the Board during the year:—

ADMINISTRATION

The only changes in the membership of the Board during the year were your appointment as Commissioner for Electricity Supply and the retirement of Mr. H. Neil Smith from that position in January 1972.

We would be remiss if we did not place on record the wonderful work done by Mr. H. Neil Smith for the electricity supply industry in Queensland. In particular, this Board is indebted to Mr. Smith for the wonderful help and guidance in so many ways that he has given through the years. His knowledge of the industry and foresight has played no small part in steering the Board round many pitfalls during the years and placing it in its present sound and stable condition.

There were no dramatic changes in the staff employed by the Board during the year. Total staff employed in June was 434, which was slightly less than the number employed in June 1971. The reduction was mainly in the substation and workshop section, where the volume of work has fallen off slightly, and also a slight reduction in the Bundaberg area, where major construction has eased.

The turnover rate for labour was relatively small during the year, in relation to the number of resignations and retirements and where necessary these positions have been filled.

During the year the Board introduced an award scheme for employees with 25 years or more service with the Board. Eighteen recipients received awards to mark their long service with the Board.

OPERATION

Although the Board finished the year showing a cash deficit of $245,020, there was a carryover of $53,334 from the previous year. The cash deficit for the year was therefore $191,686. As mentioned previously, sales of kWh for the year were 183,839,245, which was fairly close to the estimate. Unfortunately, the receipts from the increase in tariffs of approximately 10 per cent. were not as high as anticipated and as a result the deficit was higher than estimated. Sales in most classifications showed reasonable increases and it is particularly pleasing to note that sales in the domestic field were above average. Excluding transfers from Special Fund, receipts were $5,936,665, which was an increase of 10·95 per cent. from the previous year. Approximately half this increase is due to increased sales and the other half to increases in tariffs.

Total expenditure was $6,128,351 an increase of 6·4 per cent. on the previous year. Apart from some small additional costs due to cyclone damage the major part of the increase is due to greater purchases brought about by higher sales of electricity and also due to increases in salaries, wages and materials.

Generation and Purchases

Sales of kWh showed an increase of approximately 6·5 per cent. for the year and in line with this expenditure on Generation and Purchases of electricity also showed an increase. To take advantage of rationalised operating conditions and the lower cost of energy purchased from the Southern Electric Authority, generation at Howard Power Station was reduced to 135,621,300 kWh, a decrease of approximately three million kWh. It is anticipated that this trend will continue in the future.

Purchases of Electricity from the Southern Electric Authority and from Sugar Mills increased by approximately 21 per cent. to 79,093,988 kWh.

The thermal efficiency of Howard Power Station was maintained on the high level of the previous year at 21·12 per cent.

Maintenance of plant at Howard Power Station was generally of a routine nature although the addition of ferrous sulphate to the cooling water of one Turbo Alternator appears to have averted what could have resulted in costly condenser repairs.

Transmission and Distribution

Those portions of the Transmission and Distribution System along the coast received a buffetting early in February from cyclone "Daisy". Most of the damage occurred in the Pialba area where many houses were unroofed and many trees destroyed. Most of the damage to the Board's system was caused by debris from these houses and trees.

Pialba was without supply from 2.50 p.m. on the 11th February, 1972, until 11.37 a.m. the following day.

Substantial damage was also experienced at Maryborough, Howard and Childers and to a lesser extent at Bundaberg. Repairs to the system cost the Board $25,500.

A second cyclone "Emily" caused minor damage when it crossed the coast north of Bundaberg during Easter 1972.

Other aspects of operation of the Transmission and Distribution System were more satisfactory. The low rate of failure of distribution transformers reported last year continuing again in 1971-72. The failure rate from lightning damage being 1 per cent. Approximately 30 per cent of the Board's transformers have now been fitted with improved lightning protection, but our efforts have been directed more particularly to those transformers which have consistently shown the worst history of failure.

The general standard of reliability of supply to the Board's consumers remains high. During the year, the total number of unplanned outages throughout the region was 462. Considering that these interruptions relate to 5,740 miles of overhead lines and 4,700 substations, a satisfactory result can be claimed. Most interruptions occur during the summer months, approximately two-thirds occurring during the six summer months, a very large number of these originating from the effects of storms.

COMMERCIAL

The promotional activities carried out during the financial year were divided into media advertising and associated activities and promotion through advisory services.

During the year two special $40 stove subsidy promotions were conducted with the aim of again promoting the "All Electric Home" concept.

Altogether 296 Electric Ranges were installed to replace existing fuel cookers.

In the field of advisory services, Home Management staff were very active. A new activity was commenced during the year when the first series of cookery classes were conducted in the Auditorium in Maryborough. The classes were very well received.

Because of this activity only seven public cooking demonstrations were conducted, but 18 T.V. programmes were conducted during the year on special topics. 903 calls were made during the year to domestic consumers requiring advice on cooking appliances. This is an average of approximately four calls per day for the number of working days in the year.

The Board retained its market share of new home connections during the year. Of all new homes erected in the Region 81·7 per cent. installed electric ranges and 87·2 per cent. installed electric hot water services.

In the domestic advisory field many consumers took advantage of the free service offered by the Board to obtain efficiently designed lighting and wiring schemes.

In the commercial and industrial sector projects ranged from the recommendation for the complete electrification of a sawmill to flood-lighting of showgrounds and the layout of caravan parks, the ventilation of public halls, the ventilation of paint shops and commercial cooking.

In rural applications recommendations were given to irrigation customers, and a lot of interest was evident in under floor heating in a piggery.

During the year a start was made on research into various sectors of the Board's energy market. The first market survey was carried out on the application of irrigation and a second survey was taken of consumers in a particular area to establish the utilisation level of various appliances together with the buying characteristics of the people in the area.

SAFETY

The Board's continuous programme of Safety Training is at last bearing fruit. Fgures for the last period under review show a considerable drop in the figures for the previous years. The relative figures for the last two years are:—

	Frequency Rate	Severity Rate
1970	47	771
1971	33·5	243

Safety consciousness is not something that can be instilled in employees over a short time, but requires a conscious effort by everyone concerned over an extended period. The Board's programme of safety practices, lectures, demonstrations and the Safety Bulletin are all designed to achieve this effect.

The safety programme for school children was continued this year when schools in the Bundaberg and South Burnett Districts were visited. Lectures and film screenings were given to over 10,000 pupils at 91 schools. A number of adults also attended the sessions.

CAPITAL WORKS

Expenditure on Capital Works during the year totalled $1,018,967. This is down slightly on the expenditure for the previous year. This was principally because construction work on Main Transmission was at a fairly low key, as most of the work carried out was the completion of projects commenced in previous years. One of the major projects completed was the No. 2—132kV transmission line from Kilkivan to Bundaberg. This was completed and energised early in the year and should give the Bundaberg area an adequate and reliable supply for many years.

The extension of the 66kV system to Meadowvale area north of Bundaberg was also completed with the commissioning of the zone substation. Additional works were also carried out at Murgon zone substation to provide for an additional incoming feeder.

In the Bundaberg area work was commenced on a short tie line between East and West Bundaberg zone substation. Completion of the line together with the associated work in the substation will considerably improve the reliability of supply in the area.

On the Distribution side most of the work on the Cynthia/Ceratodus extension was completed and a number of consumers have already been connected to supply. The Monduran Dam extension was also completed.

Most of the balance was made up of numerous small extensions and augmentation of existing supply.

A start was made on the construction of the new workshop, store and depot for Maryborough. Levelling and grading of the site has been completed and it is expected that the erection of buildings will commence this year.

TRADING

For the first time for a number of years the Trading Department has shown a net profit on the year's activities.

The turnover for the year was up almost 30 per cent. on the previous year. This is due in no small way to intensified sales training of staff and more active trading policies.

Trading conditions are becoming more difficult due to depressed prices, but it is hoped that rationalisation now taking place will ease this situation.

TARIFFS

There was an average increase of approximately 10 per cent. in all tariffs during the year.

CONCLUSION

To all Members of the Board we offer our thanks for their interest and co-operation during the year.

The fact that the Board is able to achieve its targets and run close to Budgets each year is ample evidence of the ability and co-operation of all members of the staff.

For and on behalf of the Board

C. J. NIELSEN, Chairman.

G. NORRISH, Manager.

COMPOSITION OF THE WIDE BAY–BURNETT REGIONAL ELECTRICITY BOARD

Chairman

Alderman C. J. NIELSEN (City of Bundaberg);

Members

Alderman J. ANDERSON, (Deputy Chairman)—(City of Maryborough);
Councillor S. ANGEL (Shires of Kilkivan, Murgon and Wondai);
Councillor E. E. PUKALLUS (Shires of Kingaroy, Nanango and Rosalie);
Councillor B. M. McLELLAN (Shires of Gooburrum, Woongarra, Kolan and Perry);
Councillor T. W. GEE (Shires of Burrum, Isis, Woocoo and Tiaro);
Councillor A. W. WHITE (Shires of Biggenden, Gayndah, Mundubbera and Eidsvold);
Mr. E. D. MURRAY, M.C., B.E., F.I.E.E., F.I.E.Aust., F.A.I.M. (Commissioner for Electricity Supply).

SENIOR ADMINISTRATIVE AND TECHNICAL STAFF

Manager

G. C. NORRISH, F.I.E.Aust., M.I.E.E.

Senior Engineer

J. S. LYALL, B.Sc., M.I.E.Aust.

Secretary

N. H. RANDLE, A.C.I.S., A.A.S.A.

ADDRESS OF BOARD: 224 Bazaar Street, Maryborough.

WIDE BAY–BURNETT REGIONAL ELECTRICITY BOARD

GENERATION STATISTICS
(for year ended 30th June, 1972)

Item	—
Installed capacity (kW)—Thermal	37,500
Hydro	..
Total	37,500
kWh generated—Thermal	144,850,800
Hydro	..
Total	144,850,800
kWh used in works	9,229,500
kWh sent out	135,621,300
Maximum demand (kW) (Generated)	35,100
Annual Load factor (%) (Generated)	47·0
Coal consumed (tons)	85,562
Calorific value of coal (BTU/lb.)	12,214
Furnace oil consumed (tons)	..
Calorific value of furnace oil (BTU/lb.)	..
Diesel oil consumed (tons)	..
Calorific value of diesel oil (BTU/lb.)	..
Overall thermal efficiency (%)	21·1
Overall fuel cost/kWh generated (c.)	·620

LINE MILEAGE
(at 30th June, 1972)

Designed Voltage	Circuit Miles
High Voltage—	
132kV	167·20
66kV	521·02
11kV	2,881·32
S.W.E.R.—11kV	976·24
Sub Total H.V.	4,545·78
Low Voltage	1,711·68
Total	6,257·46

SUBSTATION STEP-DOWN TRANSFORMER CAPACITY
(at 30th June, 1972)

Type	Step-down Capacity kVA
132kV and above	110,000
33kV to 110kV	149,000
22kV and below including S.W.E.R.	149,905
Total	408,905

ENERGY PURCHASES, &c.
(for year ended 30th June, 1972)

Item	—
kWh purchased from S.E.A.	75,994,100
kWh purchased from R.E.B.'s	..
kWh purchased from other sources	3,099,888
Total kWh purchased	79,093,988
Cost/kWh purchased (c.)	1·530
System maximum demand (kW)—including generated	52,600
System annual load factor (%)—including generated	48·5

MISCELLANEOUS STATISTICS
(for year ended 30th June, 1972)

Item	—
Domestic sales (kWh)	97,674,161
Increase over previous year (%)	7·0
Total sales (kWh)	183,839,245
Increase over previous year (%)	6·5
Capital Expenditure ($m)	1·019
Total Revenue (Per Operating Revenue A/c) ($m)	5·945
Total Expenditure (Per Operating Revenue A/c)	6·472
Area of Operations (square miles)	16,200
Population of area (1971 Census)	108·630
Personnel Employed	434

APPENDIX VIII

THE CAPRICORNIA REGIONAL ELECTRICITY BOARD

ANNUAL REPORT FOR THE YEAR ENDED 30TH JUNE, 1972

The Commissioner for Electricity Supply,
The State Electricity Commission of Queensland,
447 Gregory Terrace,
Brisbane, Q. 4000

TWENTY-SIXTH ANNUAL REPORT

DEAR SIR,—We have the honour to submit herewith the Annual Report and abridged Financial Statements for the year ending 30th June, 1972.

A public supply authority, like any other business, owes its continued and successful existence to satisfying its customers. This report indicates how the Board has fulfilled its obligations in meeting all demands for low cost power, and shows the importance and growth of the service provided by the Board to the 118,000 people connected to its supply.

The increasing percentage of total costs attributable to salaries and wages is a measure of the effects of inflation on the Board's finances.

Since the last general increase in tariffs in October, 1966, this percentage has risen from 32 per cent. to 39 per cent., most of the increase having been in the last two years. In this period, the average annual salary per employee has risen by slightly over 50 per cent.

If costs continue to rise at the present rate, it is estimated that revenue must grow by about 13 per cent. per annum. Fortunately, the present growth in revenue at current prices is higher than this, and there appears no reason why it should not continue.

The record achievements of the year could not have been obtained without your and previous Commissioner's, Mr. H. Neil Smith, assistance, the co-operation of the Commission, and by diligence and attention to duty of the Board's employees. To all of these we record the appreciation of the Board.

Yours faithfully,
H. J. G. BAUMAN, Chairman.
H. T. PRIESTLEY, Manager.

Pictured is the new CREB symbol which was adopted by the Board at its monthly meeting in May, 1972. The symbol will be used on all CREB vehicles, letterheads, display stands, in fact on all equipment of CREB which is seen by the public.

CHAIRMAN'S MESSAGE

Nothing so distinguishes the standard of living from one part of the world to another as the availability of low-cost electric power.

Because electric power is so basic, the industry interacts with a broader range of human activity than does any other business enterprise. It is woven into our development, our growth as a nation, and our cultural environment.

The Capricornia Regional Electricity Board in common with other electricity authorities in Queensland, has always set as its goal the provision of this essential supply to all people at the lowest possible price.

As a measure of our achievement, the price of electricity for general domestic, commercial and rural usage in this Region has in the last 25 years, risen only by 94 per cent., despite enormous increases in wages and other costs. Since 1966, no increase has occurred. This has been achieved through the keenness and devotion to duty of all staff, and by the growth, in our area, of heavy industry, which has enabled us to install larger and more efficient plant.

The Board believes that the benefits of public electricity supply should be available to all residents in the Region, and is actively seeking ways and means of extending power to the remaining 8 per cent., who do not yet enjoy this amenity.

The Board was able to assist the Townsville Regional Electricity Board in its efforts to repair the extensive damage caused by Cyclone "Althea" on Christmas Eve last year. Employees are to be congratulated on the way they responded to the call for assistance during the Christmas and New Year Holidays.

The co-operation of the State Electricity Commission is vital to the success of our operations and the Board acknowledges gratefully that this has, as usual, been fully available.

During this year Mr. H. Neil Smith retired as Commissioner for Electricity Supply, a position he administered with extraordinary competence for 21 years. I take this opportunity of thanking him for his unfailing service, as a member of this Board over so many years, and wish him a long and happy retirement. I also extend a very sincere welcome to his successor, Mr. E. D. Murray, and assure him of our firm support.

Finally, I congratulate our new Minister, the Hon. H. A. McKechnie, M.L.A., on his recent appointment to Cabinet. Mr. McKechnie has already impressed us with a sound knowledge of our industry, and we look forward to his help and guidance in the great developments which lie ahead in the field of electricity supply.

MANAGER'S REPORT

Whilst Queensland has not encountered the full force of the economic setbacks experienced in the Southern States, the year has still been one of difficulty with escalating costs, rising unemployment and industrial unrest creating hesitancy in the minds of the public.

In such troubled times it is gratifying to report yet another year of record growth for both the use of electricity and the demand for the associated services offered by the Board.

This continued growth is a reflection of the growing social, commercial and industrial strength of Central Queensland.

I am pleased to record that, despite the increases in wages and prices of other basic commodities for production, electricity tariff charges remained unchanged during the year.

Cash Surplus—Electricity Sales

A cash surplus of $429,115 after meeting all operating expenditure and loans repayments was achieved. This represents an increase of 49 per cent. over last year. After appropriating $136,732 (up 60 per cent.) against repayments of rural extension deposits, the remainder was offset against bank overdraft.

The bank overdraft now stands at $1,697,993. This reflects the decision of the previous year to pay out the balance of the contract on the 25mw gas turbine. This year's reduction supports our expectation that the additional overdraft arising from this transaction will be settled by the date of termination of the original agreement with a saving of some $200,000.

Net Loss—Electricity Sales

The net loss, after meeting interest on loans ($3,538,977) and depreciation calculated at the schedule of rates adopted for Queensland authorities ($2,975,622), was $1,255,959.

This book loss is a result of the Board's policy to determine tariff charges such that they will recover all operating expenditure plus interest and redemption on loan liabilities rather than on a true revenue basis.

This policy has been agreed to by the State Electricity Commission during the period of very rapid development of the Region which has occurred over the last ten years, and which has been marked by heavy capital expenditure on Callide Power Station and the 132kV transmission. It is, of course, the usual accounting basis for all Government and semi-Government undertakings.

However, the Board, as a trading authority, should seek to cover its real costs completely and build up internal funds for re-investment, as would occur with revenue accounting. At the present time this would call for an overall increase in tariffs of some 10 per cent., but as the additional revenue arising directly and indirectly from recent industrial developments in the Region grows, so will the discrepancy between cash and revenue accounting decrease.

A small increase in industrial tariffs has been made at the beginning of the 1972–73 financial year, which will represent an increase of about 2 per cent. in total revenue. If the present rate of growth continues, it is expected that no further increases will be necessary before the proposed re-organization of the industry in Queensland in 1975. At that time, the overall position should be such that the revenue account will show a profit without any significant change in tariffs.

Appliance Merchandising

Despite the cautious spending attitude of the public, the Board recorded a turnover in excess of $1 million for the first time, the actual gross turnover being $1,151,212.

The Board carries its own financing of hire-purchase sales and this, combined with the sales of appliances, produced an income of $1,191,510, an increase of 43 per cent. on last year. A net profit of $97,659 before allowance of contribution (based on company tax equivalent) to the electricity fund represents a return on capital investment of 26·3 per cent.

This year, the Board engaged in special sales promotion activities in an endeavour to stimulate trade and these were very successful, particularly in the field of domestic air conditioning.

A review was made during the year of the Board's appliance merchandising activities. The policy of conducting these activities as a self-financing service, providing facilities for customers to purchase appliances on easy terms and to obtain technical advice, was re-affirmed because of its value to the electricity industry as a whole.

The appliance merchandising division was launched in 1947 by means of public loans amounting to $88,000. Since that time, it has been self-financing, raising any working capital through bank advances. The success of these activities can be gauged by the fact that all but $1,321 of the launching fund has been redeemed and this is expected to be cleared during the next trading year. In addition, accumulated retained profit now amounts to $384,104 and accumulated transfers (in lieu of company tax) of $109,016 have been paid to the Board's Operating Fund.

These transfers provide funds towards promotional advertising and advisory services which benefit all electrical retailers and consumers.

Income—All Sources

Total income from all sources was $13,454, 354 of which $12,185,457 was derived from the sale of electricity.

This figure represents actual accounts issued throughout the year and does not include accruals since the last normal meter reading of the year.

Growth of Electricity Sales

Sales of electricity were in excess of 774·8 million kilowatt hours which represents an increase of 15·6 per cent. compared with a growth of 13·3 per cent. in 1971.

While this is somewhat lower than our average rate of growth over the last six years, it is still almost twice the national average.

The increased sales resulted generally from increased usage by existing customers rather than from new connections. In this regard over $1·2 million was spent on capital improvement of existing urban distribution systems so that a reliable and satisfactory supply could be maintained.

Because of the "stepped" tariff structure which offers automatic discounts for increased consumption, the average price received from total sales fell to 1·57 cents a unit—a decrease of 2·5 per cent. The average price for general supply (other than Industrial) was 3·08 cents (down 2·1 per cent.).

Our rapid development over the past decade has altered our sales mix from one of local domestic and commercial sales to one dependent heavily on industrial sales geared to export markets. We can, therefore, assume that future annual growth will be determined by external economic conditions rather than our national business cycle.

The System—Generation

The Callide Power Station again provided the bulk of our unit output. Of the total 841 million units generated Callide produced 93·6 per cent.

Since the operating costs of Rockhampton Power Station are about three times that of Callide, the effect of operating the high merit station of Callide to maximum capabilities is reflected in the overall cost of generation per unit distributed from the power station bus-bars (including depreciation). This is now 0·838 cents, compared to 0·899 cents last year, despite steep rises in wages and fuel cost.

In addition to the normal annual preventative maintenance programme conducted on all generating equipment, No. 4 Rockhampton machine, a 15mW Brush Turbine, was given a major overhaul. This ensures that maximum capacity is now available for the coming year.

The Irrigation and Water Supply Commission raised the spillway height of the Callide Dam, on which the Callide Station is dependent for water, by 5 feet by the erection of a temporary wall and during the wet season the water rose to within 2 feet 6 inches of the new crest height. There are now ample reserves in the Dam for the requirements of the power station, as well as general use by the community.

The System—Transmission and Distribution Operations

In order to maintain a high degree of reliability of supply in the Yeppoon area and to meet future demands for power in this developing seaside resort the substation was completely re-built.

During the year the control of the remainder of the major transmission lines was brought under centralised supervision.

This control centre is manned on a continuous shift basis and from it all operations on the high voltage system are co-ordinated. Such operations include pre-arranged outages for construction and maintenance work and action to restore supply after a fault has occurred.

A major task for the live-line gang was the replacement of some 1,100 insulators on our northern line to St. Lawrence, without interruption to supply.

A continual problem is the sucker re-growth under transmission lines in some country areas. In this regard the Board has experimented with various chemical spraying techniques and has now devised a system which is effective in combating this nuisance. Over 500 miles of line have been treated in the last five years.

The majority of our transmission and distribution assets were erected during the last decade (see notes on financial statement). These are generally in a sound condition; however, certain sections of the 66kV system, which is now nearly 20 years old and older parts of the distribution system, particularly in Rockhampton, Yeppoon and Gladstone districts, are showing a degree of deterioration. A comprehensive pole replacement programme has been initiated which will restore these assets to an as new condition.

In November last year Rockhampton suffered three severe storms, including a very heavy hailstorm, which resulted in considerable damage ($50,000) but due to the efforts of the Board's repair staff, loss of supply to consumers was kept to an absolute minimum.

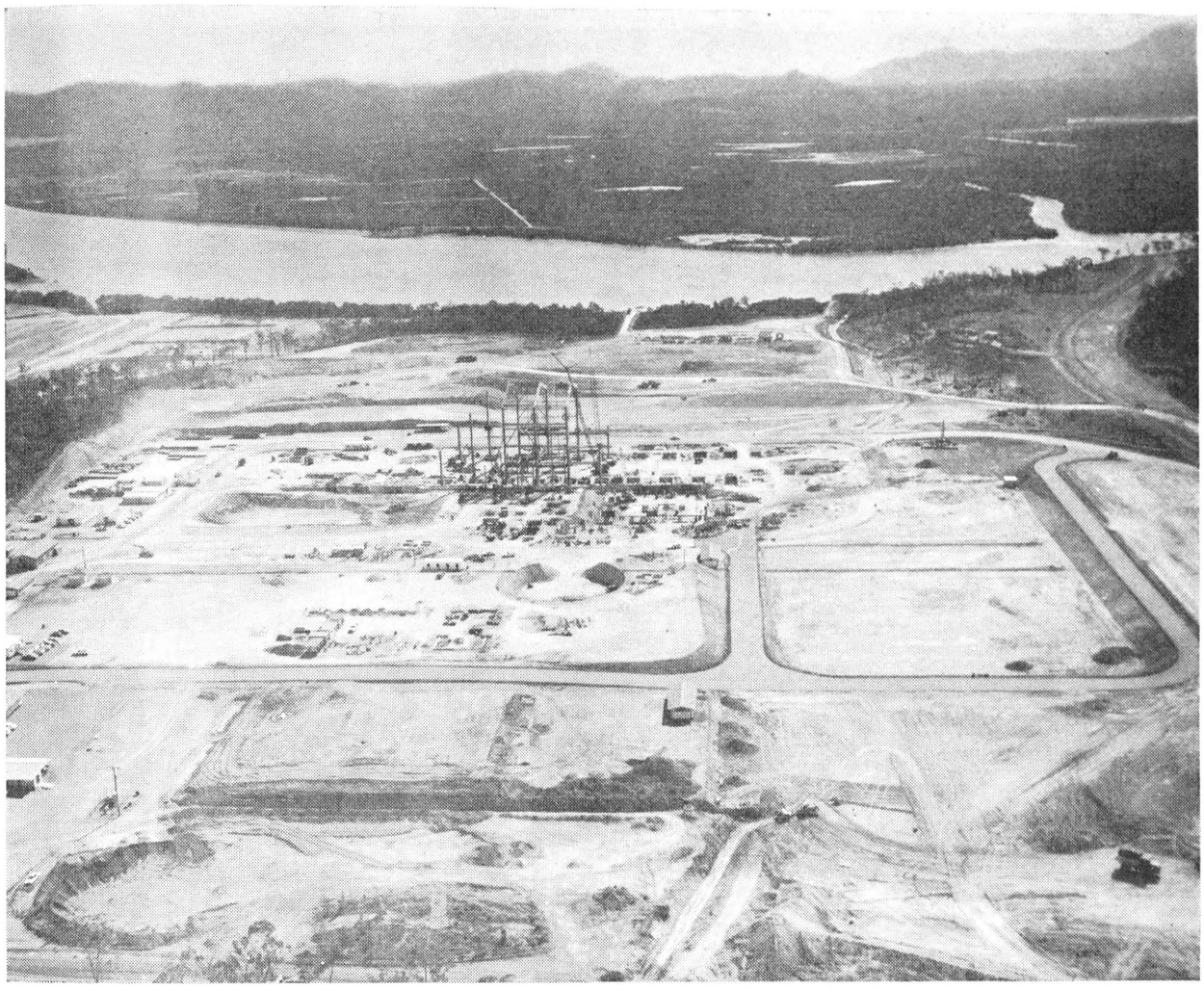
Construction

Capital expenditure on new transmission and distribution construction work amounted to $3,377,330. Capital improvements at power stations absorbed $83,615 and miscellaneous works $612,029, making a total of $4,072,974.

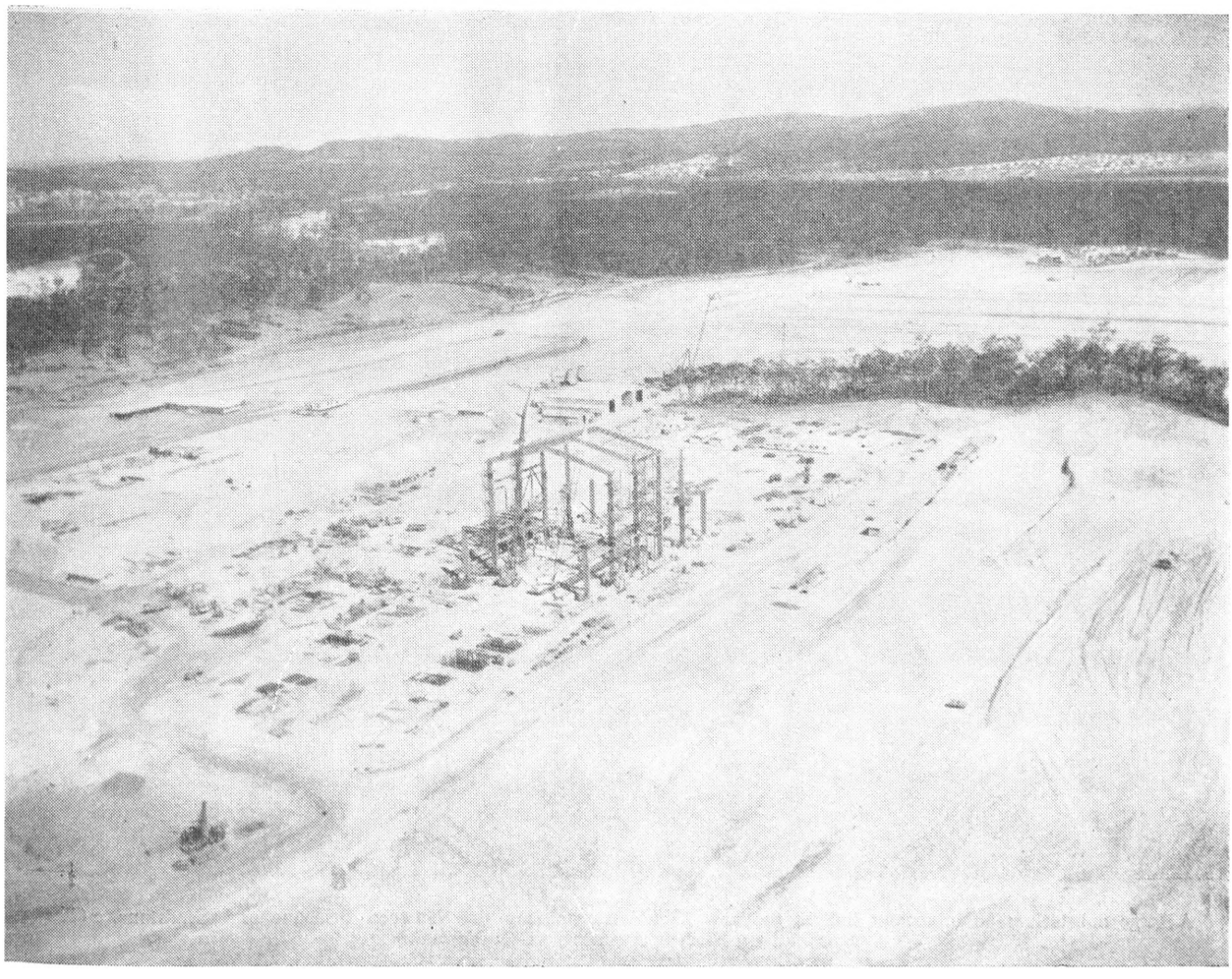
The rapid increase in new homes particularly in the Gladstone, Blackwater and Rockhampton areas continued. This development is being met by the construction of new substations and high voltage mains at a cost of $250,000 approximately.

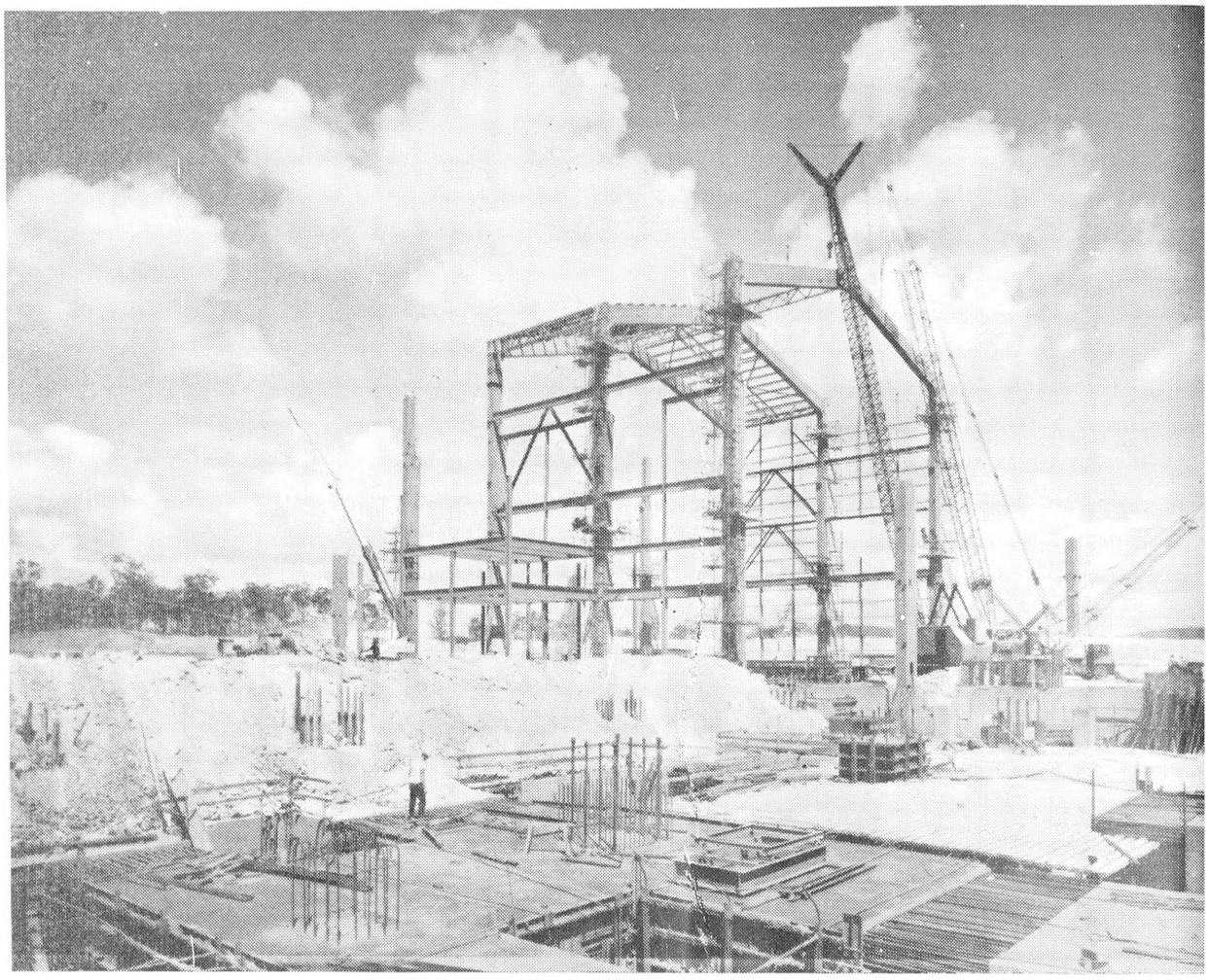
A major 66,000 volt extension to Awoonga Dam is nearing completion, to augment the supply to Gladstone Water Works.

The accelerated programme of connecting customers continued. 337 rural customers, mainly in the Bauhinia and Taroom Shires were connected to mains supply this year compared with 234 new rurals last year. These, together with 1,276 new urban consumers, brought our total customers to 36,844 (1970–71—35,231), an increase of 4·6 per cent

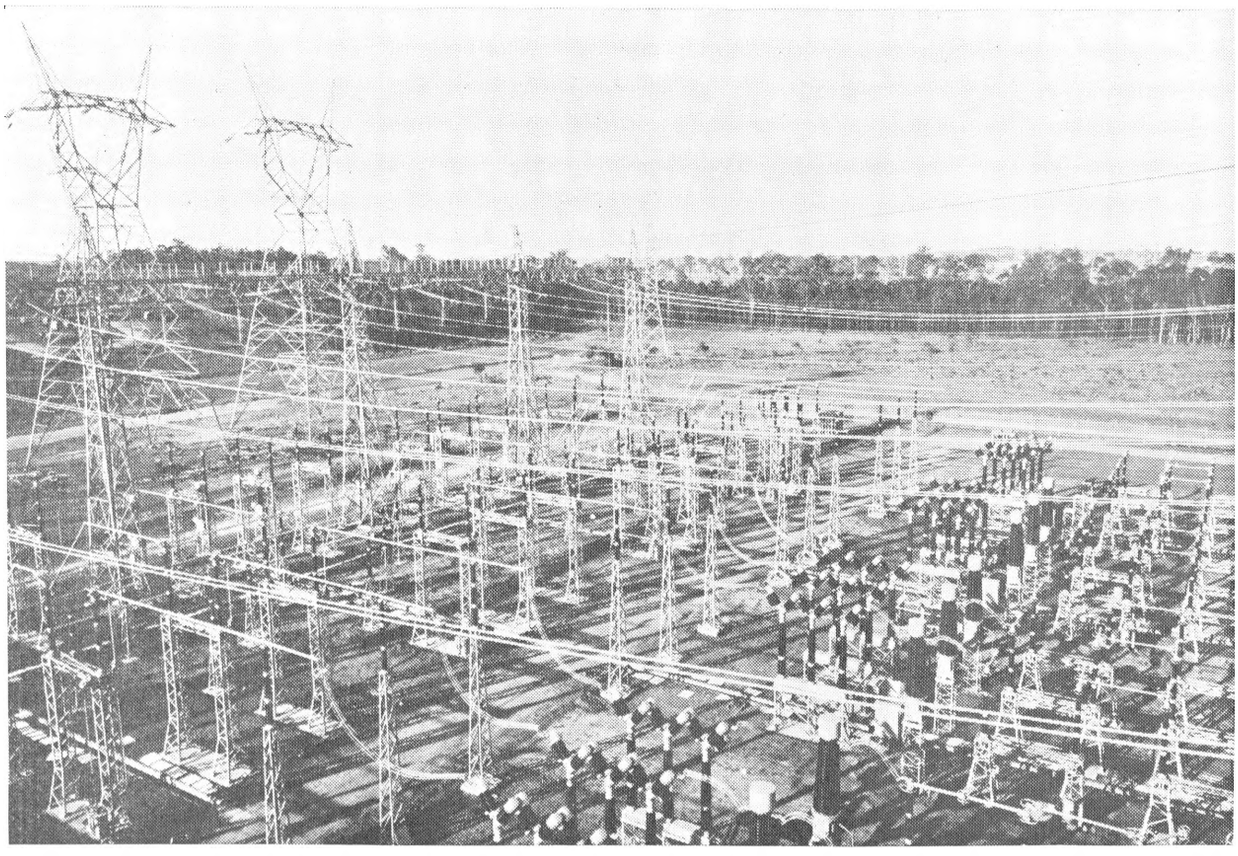


Aerial Views of Gladstone Power Station Construction Works.





Gladstone Power Station under Construction.



A large substation: an important link in the new 275kV transmission line between Brisbane and Gladstone. (The Southern Electric Authority of Queensland.)

PERSONNEL

Appreciation

The large volume of work and the favourable financial results recorded could not have been achieved without the co-operation of every employee.

Their enthusiasm and devotion to duty enabled the Board to meet our customers' needs in a competitive energy market with public acclaim.

The thanks of the Board and the Manager are extended to all who helped bring this about.

However, in the future, each and every employee must realise that his own efforts can influence the destiny of the organisation.

In a non-profit making organisation such as the Board where a large proportion (40 per cent.) of its annual revenue is committed already to previous fixed loan repayments any increase in costs, such as salary and wages, must reflect in the selling price of our service. But by increasing our sales we can offset these increases in costs, and at the same time benefit the public and ourselves.

Already throughout the Region, the Board's public image has improved greatly through the efforts of staff imbued with the marketing concept. We must press on in our endeavours to sell the benefits of electricity to the public through friendly helpful advice.

In this way the organisation will create and market a service that satisfies customers and ensures our necessary long term growth, and job security for all.

Personnel Statistics

At the 30th June, 1972, the Board had a total of 936 employees. Of this number 843 were male and 93 were female.

The average number of employees rose by 9·2 per cent. during the year due to increasing production and sales. But sales per employee rose by 6 per cent.

Total payroll in 1971-72 was $5,053,328, an increase of $1,119,477 or 25·5 per cent. over 1970-71.

Overall salary and wage rate increases flowing from the state basic wage increase and from other adjustments to Awards will add $264,000 to our expenditure on a full year basis.

The impact of these increases is evidenced by the fact that salaries and wages paid to employees represented 29·4 per cent. of our total expenditure compared with 24·9 per cent. in the previous year.

Executive Changes

Shortly after the beginning of the financial year the Chief Engineer, Mr. L. H. Faldt, retired after a lifetime of service to the electricity supply industry in Queensland and New South Wales, including some 25 years in the service of the Board.

During this period the maximum demand on the Board's system rose from 3·3 megawatts to 145 megawatts, truly a phenomenal increase.

A contemporary of the Chief Engineer, Mr. N. S. Kingsford, the Board's Accountant (Revenue), who so ably controlled the finances and secured the revenue for the units generated under Mr. Faldt's technical direction, retired, also, on the 31st March, 1972.

The 50 years *in toto* service which these two officers gave in senior executive positions helped shape the Board through its formative years into the highly complex organisation it is today.

As successor to Mr. Faldt, Mr. N. A. Tudman (formally Deputy Chief Engineer) was appointed Chief Engineer on the 1st August, 1971.

Training

So that the Board can continue its policy of promoting from within, it consciously strives to encourage young personnel to increase their ability by pursing higher education.

It is worth noting that there are many senior executives who started as apprentices and by enterprise, education and ability have risen to their present positions

Training starts with the youngest recruits—the apprentices; in addition to their formal training at the Technical College, the Board conducts its own training school which produces well-trained tradesmen of high standard.

To assist staff the Board offers cadetships to attend the Capricornia Institute of Advanced Education or Universities within Queensland. Not only has this provided a means of recruiting professional staff but has allowed existing staff to obtain advancement by completing graduate and post-graduate courses.

Management development programmes were expanded with the objective of improving job performance and preparing managerial calibre personnel for higher responsibility. In this regard the Board uses the services of the Australian Administrative Staff College, Mt. Eliza, Victoria, as well as executive training courses conducted by the Australian Institute of Management and the Electricity Supply Association of Australia's Work Study Appreciation Course at Kalorama, Victoria.

Internal supervisory courses were initiated for district superintendents and seminars on human relations and development were conducted for junior foremen and middle management staff.

The Safety Department increased its rigorous safety training and promotion programme in an endeavour to control and eliminate industrial accidents The standard of this training can be gauged by the Board's success in gaining 1st and 3rd placings at the Queensland Inter-Board Pole Top Rescue Competition held in Townsville.

HIGHLIGHTS

RECORD ELECTRICITY SALES

Excellent growth by existing customers produced record sales of 774·8 million kWh, an increase of 15·6 per cent. on last year. Despite some slowing over the last few years, growth of unit sales is still almost twice the national average.

MAXIMUM DEMAND INCREASES

Abnormally mild winter conditions curtailed the maximum demand to a peak of 151·8 MW. This is an increase of 5·1 per cent. on last year.

MORE CUSTOMERS RECEIVE THE AMENITY OF MAINS SUPPLY

Major works carried out during the year include the expansion of the capacity of distribution substations and numerous extensions of supply throughout the region. A high rate of rural development was maintained, supply being made available to a further 337 farms bringing the total number of farms now connected to the Board's system to 1,700.

LOWER SELLING PRICE TO CUSTOMERS

The low cost water heating rate was extended to cover domestic air-conditioning. All other tariffs have remained stable since 1966 despite heavy increases in salary and wages. Because of "stepped" rates the average price per kWh sold to our customers fell by 1·7 per cent. to 1·57 cents.

EXPANSION OF NETWORK

The value of fixed assets increased by $1·23 million to $50·54 million.

HIGHER INCOME

Total income from all sources to June 30, 1972 was $12,304,849, an increase of 13·2 per cent. on last year.

MILESTONE FOR APPLIANCE MERCHANDISING

For the first time turnover from the sales of appliances exceeded $1 million. Vigorous sales promotion combined with an expanding supply network to produce an income of $1,190,510. Net profit was $97,659 (8·2 per cent.) for the year.

COMPOSITION OF THE CAPRICORNIA REGIONAL ELECTRICITY BOARD

Chairman

Councillor H. J. G. BAUMAN (Shires of Duaringa, Mt. Morgan, Banana and Taroom);

Members

Alderman H. R. GARDNER, O.B.E. (Deputy Chairman)—(City of Rockhampton);
Alderman H. MACDONALD (City of Rockhampton);
Alderman L. J. MAYNARD (Town of Gladstone);
Councillor T. W. ACTON (Shires of Broadsound, Fitzroy and Livingstone);
Councillor H. C. BRAUN (Shires of Peak Downs, Belyando, Emerald and Bauhinia);
Councillor G. S. GALLOWAY (Shires of Monto, Miriam Vale and Calliope);
Mr. E. D. MURRAY, M.C., B.E., F.I.E.E., F.I.E.Aust., F.A.I.M. (Commissioner for Electricity Supply).

SENIOR ADMINISTRATIVE AND TECHNICAL STAFF

Manager

H. T. PRIESTLEY, B.E., F.I.E.E., F.I.E.Aust., F.A.I.M.

Chief Engineer

N. TUDMAN, M.I.E.Aust.

Secretary

W. S. MERRY, F.C.I.S., F.A.S.A., F.C.A.A., A.F.A.I.M.

ADDRESS OF BOARD: 152 Bolsover Street, Rockhampton.

CAPRICORNIA REGIONAL ELECTRICITY BOARD

GENERATION STATISTICS
(for year ended 30th June, 1972)

Item	——
Installed capacity (kW)—Thermal	200,693
Hydro	..
Total	200,693
kWh generated—Thermal	912,323,687
Hydro	..
Total	912,323,687
kWh used in works	70,851,026
kWh sent out	841,472,661
Maximum demand (kW) (Generated)	151,800
Annual Load factor (%) (Generated)	68·4
Coal consumed (tons)	1,871,147
Calorific value of coal (BTU/lb.)	9,236
Furnace oil consumed (tons)	151
Calorific value of furnace oil (BTU/lb.)	19,700
Diesel oil consumed (tons)	205
Calorific value of diesel oil (BTU/lb.)	19,700
Overall thermal efficiency (%)	27·5
Overall fuel cost/kWh generated (c.)	·207

LINE MILEAGE
(at 30th June, 1972)

Designed Voltage	Circuit Miles
High Voltage—	
132 kV	344·80
66kV	524·90
33kV	37·00
22kV	1,224·50
11kV	1,060·00
S.W.E.R. 12·7kV	854·00
Sub Total H.V.	4,045·20
Low Voltage	891·00
Total	4,936.20

SUBSTATION STEP-DOWN TRANSFORMER CAPACITY
(at 30th June, 1972)

Type	Step-down Capacity kVA
132kV and above	283,000
33kV to 110kV	208,650
22kV and below including S.W.E.R.	153,565
Total	645,215

MISCELLANEOUS STATISTICS
(for year ended 30th June, 1972)

Item	——
Domestic sales (kWh)	127,040,659
Increase over previous year (%)	10·7
Total sales (kWh)	774,797,278
Increase over previous year (%)	15·6
Capital Expenditure ($m)	3·860
Total Revenue (Per Operating Revenue A/c) ($m)	12·305
Total Expenditure (Per Operating Revenue A/c) ($m)	13·561
Area of Operations (square miles)	66,000
Population of area (1971 Census)	127,737
Personnel Employed	936

APPENDIX IX

THE MACKAY REGIONAL ELECTRICITY BOARD

ANNUAL REPORT FOR THE YEAR ENDED 30TH JUNE, 1972

The Commissioner for Electricity Supply,
The State Electricity Commission of Queensland,
Brisbane.

SIR,—We have the honour to submit to you the Sixteenth Annual Report and Financial Statements of the Board covering the operation for the financial year ended 30th June, 1972.

ADMINISTRATION

There was one change in membership of the Board consequent upon the retirement of Mr. H. Neil Smith as Commissioner for Electricity Supply and the appointment in his stead of Mr. E. D. Murray, M.C., B.E., on 20th January, 1972.

Our thanks and appreciation are extended to the previous Commissioner for his helpful advice and co-operation during the life of the Board over a period of more than 15 years. We also welcome you, Mr. Murray, and are looking forward with extreme anticipation to working with you for the betterment of the electricity supply industry in Queensland.

OPERATIONS

Reference was made in the two preceding annual reports to the development of the coal mine at Goonyella, the associated township of Moranbah, and the railway line and port at Hay Point for the export of coal. During the year a further mine was developed at Peak Downs approximately forty miles south of Goonyella and utilising the same town, rail and port facilities.

This further development has required continuing work to supply the over 500 installations at Moranbah and to ten railway signalling loops, together with a railway township at Coppabella and a large diesel maintenance workshop just south of Sarina.

This coal project, together with the mine to be opened at Saraji with its coal to be exported through Hay Point, has resulted in a significant increase in the Board's maximum demand and unit sales. It is anticipated that energy sales for this project will increase from 8,000,000 units in 1971–72 to over 17,000,000 units in 1975–76.

Load Growth

The year again resulted in a marked increase in load connected to the Board's system. Further increases occurred with the development of the township of Moranbah and with railway installations associated with the coal project and in particular with the Hay Point coal export complex.

The load connected for the year, calculated in accordance with the modified S.A.A. Wiring Rules, was 34, 347kW; this is an increase of 7,650kW or 29 per cent. over the previous year, of which Hay Point contributed 6,500kW.

A total of 1,244 new installations were connected which is an increase of 228 or 22·4 per cent. over the previous year. However, there was an increase of 329 installations connected at Moranbah compared with 171 in the previous year. Thus the remaining installations increased by 915 compared with 845 in the previous year, an increase of only 70 or 8·3 per cent.

Overall inspections in all categories increased from 4,973 in the previous year to 5,389, an increase of 416 or 8·4 per cent. It is of some interest to note that the requests for check inspections are increasing, particularly from the State and Commonwealth Departments.

During the year 400 temporary builders supplies were erected which is 86 more than the previous year—up 27·4 per cent.

Maximum Demand

During the 1971–72 year, the maximum demand on the Mackay bulk supply point was 34·6MW recorded between 1730 and 1800 hours on Wednesday, 14th June, 1972. This was an increase of 2·4MW or 7·45 per cent. over the maximum demand of 32·2MW recorded during 1970–71 on Friday, 25th June, 1971.

At Moranbah, a maximum demand of 1·492MW was recorded on Thursday, 25th November. This, however, included temporary supply to the Peak Downs industrial site and does not therefore correctly reflect the Board's load at this bulk supply point. Excluding the effect of supplies to Peak Downs, the Moranbah bulk supply point registered a maximum demand of 1·276MW between 1730 and 1800 hours on Monday, 29th May. This demand is 0·876MW, or 219·0 per cent. above the maximum demand of 0·4MW recorded at Moranbah during 1970–71 (corrected for Peak Downs supply).

The combined coincident system maximum demand of 35·836MW was recorded on Wednesday, 14th June and was 3·276MW higher than the corrected system maximum demand of 32·6MW for the previous year providing an annual increase of 10·05 per cent. The expected increase in demand due to coal loading operations at Hay Point did not occur and the actual maximum demand of 2·6MW at Hay Point is considerably less than the demand of 4·2MW forecast by the consumer.

Units Purchased and Sold

Kilowatt hours purchased totalled 133·233 million or 3·233 million units higher than the estimate, partially accounted for by approximately an extra 1 million units sold for the Peak Downs mine site temporary supply and 0·53 million to the Townsville Regional Electricity Board. Units unaccounted for as a percentage of units purchased decreased from 11·14 per cent. to 10·56 per cent., which would have been mainly caused by the H.V. supply at Hay Point and the bulk supply point being adjacent to Moranbah. The actual figures were 12·959 and 14·075 million kWh's.

Sales to the Townsville Board increased from 209,400 to 532,400 and purchases from that Authority increased from 141,600 to 1,143,800.

Total sales were 119·158 million units, an increase of 4·108 million over the estimate, partly, as explained, by the increased sales for the temporary Peak Downs mine supply and the Townsville Regional Electricity Board.

Sales to the Board's normal consumers were 118·626 million units an increase of 15·0 per cent. above those of the previous year.

The annual estimated load factor including Moranbah was 42·33 per cent. which is significantly higher than 39·97 per cent. for last year, but is similar to the 42·48 per cent. of the 1969–70 year. With the increasing development of Moranbah township the load factor at that bulk supply point improved from 9·9 per cent. to 34·8 per cent.

Bulk Supply

The reliability of supply to the bulk supply points at Mackay and Moranbah was extremely satisfactory.

At Mackay there were five minor interruptions totalling eleven minutes, one of which, lasting six minutes, was the direct result of industrial action by N.E.A. staff on 30th August.

At Moranbah there were four interruptions totalling twelve minutes and again two interruptions totalling seven minutes resulted from industrial action on 30th August.

The 66kV line between Proserpine and Bowen was again used by both the Mackay and Townsville Boards to provide alternative supplies for Proserpine and Merinda respectively during emergencies and to allow planned maintenance work to be carried out.

Distribution System

The distribution system operated normally throughout the year. The major cause of losses of supply was due to the most severe storm activity experienced in recent years.

During the month of November, 1971, storm damage to the distribution system included the failure of H.V. fuses on 41 transformer stations, failure of 12 rural transformers and 37 other faults on the H.V. system. Loss of supply resulting from storms continued to a lesser extent throughout December, January and February. On 24th December, there were several interruptions to both H.V. and L.V. supply due to high winds associated with Cyclone "Althea".

There were several interruptions during the year due to pole fires caused by burning cane. The deterioration of sap wood on untreated poles in or adjacent to cane fields has been the cause of an increase in this type of pole fire in recent years. The present line maintenance programme is aimed at reducing the likelihood of fires by removing this sap wood and giving some publicity to this problem in an endeavour to make farmers aware of their responsibility in checking poles for signs of burning and extinguishing any fires at or near ground level. It is expected that the use of replacement V.P.I. poles will eventually result in a reduction of pole fires from this cause.

Several insulators on H.V. lines have been found damaged by rifle fire. The most serious incident was five 33kV insulators found broken following a fault on a transmission line. This and similar instances have been reported to the Police, but in no case have the culprits been located.

CONSTRUCTION

Sub Transmission

Alterations were carried out to the Proserpine–Merinda 66kV line in the vicinity of the proposed Kelsey Creek Substation to be constructed by the N.E.A. to permit construction works to proceed.

Further 66kV lines were constructed on behalf of a coal mining company, completing the project commenced in the previous year.

In the Hume Street Switchyard, preparations were made to divert supply to the 66kV system past the 33kV switchyard, however, the changeover was deferred pending line works north of Proserpine.

Distribution System

During the 1971–72 year, the Board's distribution system expanded into the western half of the region following the advent of the Goonyella coal project. This was made possible initially by the establishment of a distribution centre at Moranbah and subsequently by requests from the Railway Department to provide supply to the rail township at Coppabella some 24 miles distance from Moranbah and to crossing loops for signalling purposes along the route of the Goonyella/Peak Downs/Hay Point railway. A 19kV S.W.E.R. system was extended from Moranbah to Coppabella where a 100kVA distribution transformer was installed to supply the railway township. From this line, supplies were extended to two railway crossing loops and nine grazing properties in a southerly direction along the Isaacs River. Several of these properties were outside the Board's region and have been supplied under licence. Two other railway crossing loops and seven grazing properties were supplied by a southern and western extension of the Board's distribution system from Nebo. This extension was constructed at 19kV and energised at 12·7kV. Further rural extensions included supply to the Bolingbroke Road area in Sarina Shire and to a number of individual farms throughout the region.

Three new 500kVA cubicle transformer stations were installed, and some extension of L.V. using underground cable was carried out in the Mackay City area.

The low voltage reticulation of the area to be developed initially for Utah Development Company in Moranbah Township has been completed and supply is now available to 550 allotments as originally arranged between the Board and the Company.

In Mackay a number of subdivisions have been opened up and new subdivisions reticulated included Lagoon Street, Far Beach, and Boundary Road. Supply to Lands Department subdivisions at Lamberts Beach, Perpetua Point and Finlayson Point did not proceed as expected. In the case of the Lands Department subdivision at Lamberts Beach which is the first stage of a large scale subdivision in the Slade Point area, the development was retarded by the very high guarantees requested from the initial consumers. Development would undoubtedly have proceeded at a greater pace had the Lands Department agreed to finance the reticulation or guarantee the revenue in the initial stages.

System augmentation works carried out during 1971–72 included the construction of an 11kV feeder to the Kelsey Creek Substation site to provide construction power for the N.E.A. and the Board.

In urban areas a number of new transformer stations were commissioned to meet expanding loads. With the installation of maximum demand indicators on all transformer stations with capacity of 100kVA or more, load growth was identified on a number of urban substations which were increased in capacity.

Public Lighting

As reported last year, the Pioneer Shire Council has continued its policy of lighting urban areas of the Shire. Following the erection of 95 lights in Stage 1 of the plan to light North Mackay in the 1970–71 year, a further 190 fluorescent lights were erected during the 1971–72 year to complete Stage 2 of this scheme. This Council has also requested the Board to erect 41 fluorescent street lights in Seaforth township and this work is programmed for 1972–73. Proposals have been prepared for lighting major traffic routes in the North Mackay area and the Council has requested the Board to proceed with the erection of high intensity lighting in Evans Avenue between the Kooyong intersection and the Regal Theatre and in Palmer Street between Harbour Road and Grendon Street. The Council has also indicated to the Board their intention to proceed with high intensity lighting in Harbour Road between the Kooyong intersection and Slade Point Road and in the Cremorne area between the Forgan Smith and Barnes Creek Bridges. These works have been programmed for the 1972–73 financial year.

At Moranbah, 132 fluorescent street lights were erected in the residential areas of the township for the Belyando Shire Council who have now requested the erection of a further 57 fluorescent street lights in and around the Town Square. They have also requested the erection of twenty 310 watt solar colour sodium vapour street lights at the intersections of Goonyella Road with Mills Avenue and Curtin Street which are the entrance streets to Moranbah township.

In the Mackay City Council area, 14 fluorescent street lights have been erected in new subdivisions and a trial installation of six 310 watt solar colour sodium vapour street lights were erected at the intersections of Sydney, Hamlet and Juliet Streets.

Intermediate mast lighting schemes have been installed for the Main Roads Department at the Kooyong Intersection and at the intersection of Evans Avenue and Grendon Street in North Mackay. Three 1,000 watt mercury halide wide angle flood lights and ten 400 watt colour corrected mercury vapour lights were erected on Barnes Creek Bridge and approach roads to these intersections. The Main Roads Department has also requested the Board to erect 12 mercury vapour lights at the intersection of the Bruce Highway with Sugar Shed Road and Farleigh Road at Farleigh, and arrangements have been made with this Department to replace existing lighting on Forgan Smith Bridge and upgrade it to comply with the S.A.A. Code for Traffic Routes. Two further proposals have been prepared for the Main Roads Department for intersection lighting at the junction of the Bruce Highway and Shute Harbour Road at Proserpine and at the junction of the Bruce Highway and Brandon Street at Sarina.

Buildings

In preparation for the new electrical workshop at the site of the Hume Street Power Station the old turbine blocks and other foundations were removed using explosives and the area filled in preparation for flooring.

The Hume Street yard area was filled, consolidated and levelled.

Works planned for the 1971–72 year included the erection of a cable store at Calen and the construction of a residence for the Superintendent at Proserpine. When the Loan Works Programme was reviewed at the beginning of the financial year, the Proserpine residence was deleted due to shortage of funds and the cable store at Calen was not able to be constructed as design staff were otherwise engaged. During the 1972-73 year, it is planned to erect a new residence for the Superintendent at Proserpine as the first stage of the provision of adequate depot facilities in that district. It is also proposed to erect the cable store at Calen.

FUTURE DEVELOPMENT

The construction of a new zone substation at Proserpine adjacent to the N.E.A. Substation being constructed at Kelsey Creek will require the re-routing of 11kV and 66kV feeders in the Proserpine district. The design of the new 66/11kV substation at Proserpine is mostly complete, and work is planned to commence early in the new year.

Equipment is at hand for the construction of a new 66/11kV substation at Crediton, and construction has been delayed pending completion of land acquisition.

The construction of five miles of 66kV line to form part of the Proserpine/Shute Harbour feeder was not carried out during 1970–71 as planned due to difficulties in obtaining line route approvals and it is now expected that this feeder will be completed during the 1972–73 year and initially energised at 11kV.

A large programme of supplies to subdivisions mainly in the Mackay area is expected to be carried out during 1972–73. These works include the Queensland Housing Commission subdivision in South Mackay and the Lands Department subdivision of reclaimed areas at East Mackay and Slade Point. No further reticulation work is expected to be carried out at Moranbah, however two additional transformer stations will be required as the existing area becomes fully built on.

The 11kV feeder loads in the Mackay area from the Tennyson Street substation are reaching the stage when operational problems can be envisaged during fault conditions

at peak periods. It is proposed to commence the construction of a new feeder in Alfred Street which will ultimately enable feeder loadings to be reduced. The load growth expected in the business area of Mackay and urban areas generally will require a number of new transformer stations and increase in capacity of existing transformer stations.

In rural areas no new extensions are expected to sizable groups of consumers, however a regulator will be installed in the Mia Mia area to improve voltage regulation for irrigation consumers and steel conductors to the Lethebrook area which have been erected for approximately 13 years will be replaced as they are corroded.

Planned maintenance works will be carried out in the Farleigh and Mount Bassett zone substation areas and in conjunction with this it is proposed to carry out system improvement works in the same areas.

An enquiry from an organisation developing a new resort on St. Bees Island, regarding the supply of power from the mainland prompted a re-evaluation of the cost of supply to other such resorts and these were advised of likely present days costs and economies. However, the response was disappointing.

An investigation into feasibility of supply to a second coal handling port in the Mackay area was made for coal mining interests, together with supply to a new town and an extensive water supply pumping system in the south-western region of the Board's system as part of the same project.

Preliminary advice was received from Utah Development Company of load increases likely at Hay Point by 1974.

The Mackay Regional Planning Committee met in September and May, and matters discussed included the availability of the Merinda Regulator for use at the new Proserpine Bulk Supply point for standby supply until the second transformer is installed, and the requirement for an additional 66kV Feeder bay, should supply to the Whitsunday Islands necessitate a 66/11kV substation in the Airlie/Shute Harbour area.

GENERAL

Staff

During the year staff appointments were made as listed below:—

Rural Works Superintendent on 9th December, 1971.
Technical Advisory Officer on 8th May, 1972.

A District Superintendent was appointed to the vacant position at Calen on 26th June, 1972.

One of the Board's Electrical Mechanics, Mr. G. F. Christensen commenced National Service on 17th April, 1972.

Staff Training

A Leading Hand Electrical Fitter attended a cable jointing school for two weeks and qualified as a cable jointer. Five supervising line staff attended the Safety and Supervisors Course at the Line Training School and a trainee linesman qualified as a linesman at this school. Four trainee linesmen have enrolled in the linesmen's correspondence course and four employees are studying for Technician Certificate Courses.

The Supervising Districts Engineer attended the E.S.A.A. Works Study Appreciation Course.

Safety and Safety Training

Harvesters.—There were three reported instances of contact by Toft cane loaders with high voltage overhead lines. In one instance, two conductors were brought down, but, fortunately, in no case was any shock sustained.

Electric Shock: General Public.—There were no fatalities due to electric shock and there were nine reported cases of non-fatal electric shock, the most severe injury sustained being severe burns to one hand.

Electric Shock: Board Employees.—A Mackay based electrical mechanic received a hand to hand shock of 415 volts. He received on the spot resuscitation and was taken to the Base Hospital for observation and treatment for burns to the hand. He reported for work the next day.

Accidents.—Board employees sustained nine disabling injuries and lost 153 working days, 62 of which resulted from an ankle fracture sustained in the previous year. The most serious injury was an abdominal rupture which cost 49 working days.

School Education.—The School Electrical Safety Education programme for 8th Grade High School students is being presented again in 1972. To date, four schools have been visited.

Staff Training.—Pole rescue and resuscitation training with bi-annual screening of selected safety films was again a feature of the Board's safety programme. All new employees, excluding office staff, received safety induction training and were medically examined as required. There were 19 medical examinations, several of which were for post injury medical clearance. Approval was given to continue the Age-Group Safety Competition which is gaining increasing support from the competitors. The 1971 Competition was won by the 30 years and under group. A valuable extension of the Board's Safety Programme was the inauguration of an Executive Safety Committee.

Office, trading, commercial and engineering staff attended demonstrations of the various types of fire extinguishers provided by the Board in these Departments. The two sessions required to accommodate the personnel involved attracted considerable interest.

Public Training.—The Board provided instruction in expired air resuscitation and external heart massage for employees of Hay Point Services and the Australian National Power Alcohol Company, Sarina. This was in response to requests made by the Managers of both organisations.

A lecture on electrical safety was given to Mackay Ambulance Bearers and Honorary Bearers.

Protective Clothing.—Protective clothing and subsidised footwear was again issued to eligible personnel. The footwear has now been extended to survey staff and to certain stores staff.

Safety Convention.—The Safety Officer attended the 1972 Occupational Safety Convention which was held in Brisbane on 11th, 12th and 13th April, 1972.

Transport

During the year 78 motor vehicles were in service with the Board. This vehicle fleet travelled 736,439 miles, an increase of 19,188 miles over the previous year. This additional mileage was mainly due to the works associated with the latter stages of the development of coal mines and rural construction in the western area.

In accordance with the Board's policy, 20 vehicles were replaced and it is expected to replace 26 vehicles during the 1972–73 year. One country district was equipped with an additional new four-wheel drive utility, this being in accordance with the Board's policy to place an additional four-wheel drive vehicle in each of the district centres by retaining the depreciated lifting trucks to reduce overall costs.

Towards the end of the year a four-wheel drive tractor, equipped with a front-mounted dozer blade and rear-mounted rotary slasher was purchased for clearing of regrowth under power lines and restoration of access tracks.

General servicing and vehicle maintenance was performed without any serious delay to the operation of the vehicle work force, and any delay which did occur was due to replacement parts not being readily available.

Commercial Department

In analysing the Board's achievements in load growth and in increased unit sales ample evidence is provided of the general acceptance of electricity as the modern form of energy.

For domestic living the "All Electric" image, developed during recent years, has been strengthened, and increased marketing activities will be directed to promote the use of selected electrical appliances with the aim of increasing unit sales and improving the system load factor.

There has been wide acceptance of air conditioning for commercial premises. Activities will continue in an endeavour to increase the demand for air conditioning and ventilation by this class of consumer.

It is pleasing to report the quickly growing acceptance of commercial electric cooking and there is ample evidence of this particular load increasing.

Possibly the most encouraging development has been in the acceptance of electric irrigation. Following some years of slow load growth in this particular field positive marketing actions were taken to ensure that the electrical industry would secure an increasing share of this load. Specific "time of day" tariffs offering incentive night rate economics for electro-farming activities have been generally accepted. Apart from assisting to increase electricity unit sales for electro-farming purposes the tariffs have provided to some extent financial relief to farmers in their fight against rising costs.

During the year two well attended meetings sponsored by the Electrical Development Association of Queensland were held in Mackay. Representatives of all sectors of the electrical industry attended and it is considered that activities of this type will provide a better understanding between the various sectors of the industry.

Computer Installation

The Board's computer installation has functioned smoothly during the year. Systems analysis of the Board's Hire Purchase operations was completed and programmes written and tested. The computerised system was put into operation during March, 1972 and was run in parallel with the previous method for three complete monthly cycles. The final transfer was made on 30th June, 1972. No customer inconvenience was caused during the changeover.

During June the Board took delivery of electronic tape punching equipment which will replace the outdated mechanical tape preparation equipment previously used. Two of the Board's staff attended a course of instruction in programming this equipment and programmes are currently being written for this equipment.

FINANCIAL STATEMENTS

Loan Indebtedness

Loan raisings during the 1971–72 financial year amounted to $650,000. Redemption and contributions to Sinking Funds amounted to $270,294.72. Sinking Fund accretions credited for the year totalled $21,250.66 leaving Loan Indebtedness at 30th June, 1972 at $10,146,562.03 a net increase of $358,454.62.

Operating Fund

The results for the year are again quite satisfactory. The overdraft estimated as a result of operations for the year was $215,866 but the actual overdraft at 30th June, 1972 was $77,438.75.

The following statement sets out how this difference was realized:—

RECEIPTS

	Under Budget $	Over Budget $
Sales of Electricity	..	85,780.00
Subsidies	1.00	..
Interest on Investments	..	416.00
Sale of Assets	..	5,154.00
Miscellaneous	866.00	..
	$867.00	$91,350.00
Net Surplus	$90,483.00	

DISBURSEMENTS

	Under Budget $	Over Budget $
Purchase of Electricity in Bulk	..	39,327.00
Transmission and Distribution	51,497.00	..
Management	19,127.00	..
Loan Commitments	28,430.00	..
Sundries	..	11,783.00
	$99,054.00	$51,110.00
Net Under-Expenditure	$47,944.00	

	$
Receipts Over Budget	90,483.00
Disbursments Under Budget	47,944.00
Decrease in Budgeted Overdraft	$138,427.00

Automatic Pop-up Sprinklers Watering Greens at Mackay Golf Links.

LOAN FUND

Receipts

This fund commenced the year with a carryover of $436,133. The year ended with a carryover of $381,077 due mainly to payments connected with construction of the new administration building being less than allowed for in the budget. The following statement sets out how this carryover was produced:—

RECEIPTS

	Under Budget $	Over Budget $
Contribution to cost of Electrical works	..	8,977.00
Extension Deposits	24,823.00	..
	$24,823.00	$8,977.00
Receipts under Budget	$15,846.00	

DISBURSEMENTS

	Under Budget $	Over Budget $
Distribution	113,884.00	
Miscellaneous	283,039.00	
Total Under Expenditure	$396,923.00	

	$
Under Expenditure	396,923.00
Less Receipts under Budget	15,846.00
	$381,077.00

TRADING FUND

The operations of the Trading Department have resulted in a loss of $11,194.00 for the year. Accumulated losses in this Fund now total $19,219.00.

SPECIAL FUND

Transfers amounting to $37,860.00 were made to this Fund during the year in accordance with Budget estimates. The balance of this Fund at 30th June, 1972 was $77,592.00, consisting of a bank balance of $62,592.00 and an investment of $15,000.00 in State Electricity Commission Public Loan No. 54.

ACKNOWLEDGEMENTS

On behalf of the Board we express thanks and appreciation to The Honourable W. A. R. Rae, the Minister for Local Government and Electricity up to 20th June, 1972, to the previous Commissioner and to yourself and officers of The State Electricity Commission for the assistance given during the year under review.

We look forward with anticipation to working under the guidance of the newly appointed Minister for Local Government and Electricity, The Honourable H. A. McKechnie.

We also convey to all employees appreciation and thanks for their loyalty and the manner in which they performed their respective duties.

The Press and Radio Station gave excellent coverage to the Board's activities and we express thanks to the representatives.

T. G. NEWBERY, M.L.A., Chairman.
S. MURRAY, Manager.

View of "County" 1124 4 x 4 tractor fitted with 8 ft. 'dozer blade and Howard 72 inch "Rotaslasher" clearing light secondary growth and fallen timber along a line access route.

COMPOSITION OF THE MACKAY REGIONAL ELECTRICITY BOARD

Chairman

Councillor T. G. NEWBERY, M.L.A., F.A.I.M. (Shire of Sarina);

Members

Councillor J. H. YOUNG (Deputy Chairman)—(Shire of Pioneer);
Alderman M. E. STRUTHERS (City of Mackay);
Alderman R. STRUTHERS (City of Mackay);
Councillor P. FAUST (Shire of Proserpine);
Councillor E. J. DOYLE (Shire of Mirani);
Councillor I. L. SHANNON (Shires of Nebo and Broadsound);
Mr. E. D. MURRAY, M.C., B.E., F.I.E.E., F.I.E.Aust., F.A.I.M. (Commissioner for Electricity Supply).

SENIOR ADMINISTRATIVE AND TECHNICAL STAFF

Manager

S. MURRAY, F.A.S.A., A.C.I.S., F.I.M.A., A.F.A.I.M.

Senior Engineer

R. M. EDDIE, A.S.T.C., M.I.E.Aust., A.F.A.I.M.

Secretary

N. L. GREEN, F.A.S.A., A.C.I.S., A.A.I.M.

ADDRESS OF BOARD: Cnr. Gordon & Gregory Streets, Mackay.

MACKAY REGIONAL ELECTRICITY BOARD

ENERGY PURCHASES, &c.
(for year ended 30th June, 1972)

Item	——
kWh purchased from N.E.A.	132,089,424
kWh purchased from R.E.B.'s	1,143,800
kWh purchased from other sources	..
Total kWh purchased	133,233,224
Cost/kWh purchased (c.)	1·169
System maximum demand (kW)	35·836
System annual load factor (%)	42·33

SUBSTATION STEP-DOWN TRANSFORMER CAPACITY
(at 30th June, 1972)

Type	Step-down Capacity kVA
132kV and above	..
33kV to 110kV	73,500
22kV and below including S.W.E.R.	107,988
Total	181,488

LINE MILEAGE
(at 30th June, 1972)

Designed Voltage	Circuit Miles
High Voltage—	
66kV	161.60
33kV	180.30
11kV	1,449.22
S.W.E.R. 19·1 and 12·7kV	183.48
Sub Total H.V.	1,974.60
Low Voltage	502.74
Total	2,477.34

MISCELLANEOUS STATISTICS
(for year ended 30th June, 1972)

Item	——
Domestic sales (kWh)	73,152,397
Increase over previous year (%)	10·4
Total sales (kWh)	118,625,582
Increase over previous year (%)	15·0
Capital Expenditure ($m)	·956
Total Revenue (Per Operating Revenue A/c) ($m)	3·671
Total Expenditure (Per Operating Revenue A/c) ($m)	3·524
Area of Operations (square miles)	9,500
Population of area (1971 Census)	59,118
Personnel Employed	205

APPENDIX X

THE TOWNSVILLE REGIONAL ELECTRICITY BOARD

ANNUAL REPORT FOR THE YEAR ENDED 30TH JUNE, 1972

The Commissioner for Electricity Supply,
The State Electricity Commission of Queensland,
447 Gregory Terrace, Brisbane.

DEAR SIR,—We have the honour to present to you the Twenty-sixth Annual Report of the Townsville Regional Electricity Board for the year ended 30th June, 1972.

The Board has been able to meet the requirements of all its consumers and the rehabilitation of the damage caused by cyclone "Althea" has been completed.

Our construction programme is designed to meet the requirements of an expanding demand, and every effort will be made to carry this out in the most efficient manner.

On behalf of the Board we thank you and your officers for your guidance and assistance throughout the year and particularly during the immediate period after cyclone "Althea".

Yours faithfully,
G. E. PARTLETT, Manager.
W. O. GARBUTT, O.B.E., Chairman.

FINANCIAL RESULTS

Operating Fund

Cash transactions for this fund for the year resulted in an overdrawn position of $272,257.

The main factor was the net over run of $533,748 on transmission and distribution costs due to cyclone restoration work. The loss of revenue following cyclone "Althea" was gradually recouped through expansion resulting in an under run of $27,743 in the receipts from the sales of electricity.

An amount of $571,732 was received by way of relief from the State and Commonwealth Governments for the restoration of cyclone damage to reticulation.

Loan commitments were down by $25,607 and computer operations cost $15,067 less than the original estimates.

Receipts from all sources totalled $11,622,610 compared with $9,820,403 for 1970–71 whilst expenditure totalled $11,615,409 compared with $10,143,510 for 1970–71.

Management

The total cost under this item ($760,731) was $22,821 over budget due mainly to escalation in salaries and wages over the original forecast.

Loan Commitments

The total for this item continues to increase with the continued expansion by the Board.

Of a total of $2,147,471 for the year, redemption costs amounted to $609,903 and interest $1,389,863.

Sundries

Under this item the Board spent $314,751. Repayments to consumers under the rural extension deposit scheme were $193,412.

Various suspense accounts are covered by this item such as sundry debtors (recoverable works) and oncost accounts for transport, plant, stores and wages.

Cost allocations are also made here for:—
- Computer Operations
- Public Relations Activities
- University Cadetships
- Staff training Schemes
- Range Wiring (Installation) Subsidies (ceased to apply from 1st October, 1971)
- Stocktaking Adjustments.

MEMBERSHIP OF THE BOARD

On 13th March, 1972, Mr. E. D. Murray, M.C., B.E., F.I.E.E., F.I.E.Aust., F.A.I.M., was appointed Commissioner for Electricity Supply in Queensland to succeed Mr. H. Neil Smith, B.A., Companion I.E.E., F.A.I.M., who returned on 21st January, 1972, after twenty-two years as Commissioner for Electricity Supply in Queensland.

Mr. Murray replaced Mr. Neil Smith as a member of the Board.

APPOINTMENT OF SECRETARY

On 27th April, 1972, the Acting Secretary, Mr. E. D. Bourke, A.A.S.A., A.C.I.S., was appointed Board Secretary to succeed Mr. R. V. Coglan, F.C.C.A., A.C.I.S., A.A.A., A.A.S.A., A.I.M.A. Mr. Coglan was the Board's first Secretary and held that position for twenty-five years.

AREA OF SUPPLY

The area of supply remained unchanged at 102,105 square miles.

TARIFFS

Following an increase in the bulk supply rate, a review of the Board's tariffs resulted in an approximate 5 per cent. increase as from October, 1971.

Coincidental with this general tariff increase was the introduction of an industrial all-purpose two part demand tariff (Tariff "F"). This tariff is for large industrial consumers and is designed to encourage an improvement in load factor thus making better use of the Board's assets.

PURCHASE OF ELECTRICITY

The Board paid 55·3 per cent. of the revenue derived from its electricity sales for the purchase of electricity from the Northern Electric Authority of Queensland.

386,342,227kWh were purchased at the bulk supply rate for $5,525,443, while 42,628,100kWh and 82,100kWh were purchased at the two part supply rate for $486,018.

Total purchases from N.E.A. showed an overall increase of 8·6 per cent. over last year.

SALES OF ELECTRICITY

The total units sold for 1971–72 was 411,030,880 which represented a 9·51 per cent. increase over 1970–71. The number of consumers billed was 42,492.

Combined commercial and industrial light and power accounted for 43 per cent. of all unit sales which amounted to 151,011,338 units.

Domestic consumers to whom 94,734,577 units were sold represented 26·9 per cent. of total sales.

The growth in the western division dropped to 4·94 per cent. this year compared with 12 per cent. increases in each of the previous two years. The coastal division showed 9·64 per cent. increase over 1970–71.

EXPENDITURE

Capital Fund

Expenditure on capital works for the year totalled $1,891,838 and was made up as follows:—

	$
Generation Works	15,804
Main Transmission Works—	
(1) Major Substations	204,802
(2) Transmission Lines	175,186
Distribution Works—	
(1) Specified Projects	224,645
(2) Unspecified and General	914,964
Miscellaneous Works—	
(1) Land and Buildings	90,735
(2) Plant and Equipment	11,071
(3) General (including suspense accounts)	254,631
	$1,891,838

Apart from a cash carry over from the previous year funds to do the above work were provided from new loan raisings from The State Electricity Commission of $1,600,000 and from Extension Deposits of $52,645.

One of the two 15 MVA transformers for Cranbrook zone substation being off-loaded at Townsville Harbour.

Cyclone damage—wind strength up to 120 m.p.h.

Trading Fund

Total receipts for the year were $1,700,903 comprising mainly appliance sales and hire purchase payments. A transfer of $63,982 being the equivalent of company income tax, was made to operating fund.

We have operated during the year through a buying group which has provided better based buying prices and more competitive retail prices to the end consumer.

Our increased turnover is largely attributable to natural growth rate in the region, the release of television in the western and Collinsville areas and an increase in replacement business due to the cyclone.

COMPARISON OF 1971–72 ELECTRICITY SALES BY DISTRICTS

District	Unit Sales—kWh x 10^6		
	1970–71	1971–72	Actual % Increase on 1970–71 Sales
Townsville	224·6	250·8	12·0
Ingham	29·2	31·1	6·4
Ayr	71·0	72·2	1·8
Bowen	25·9	29·7	14·7
Charters Towers	13·9	15·2	9·5
Total Coastal Division ..	364·6	399·0	9·6
Hughenden	4·6	5·0	7·4
Richmond	2·3	2·4	3·6
Julia Creek	1·6	1·7	7·7
Winton	2·2	2·1	—0·8
Total Western Division ..	10·7	11·2	4·9
Total Region	375·3	410·2	9·3
Bulk Supply to M.R.E.B. ..	0·06	0·8	..
Total Sales ..	375·36	411·0	9·5

LOAD BUILDING ACTIVITIES

During the year the Board's technical advisory service provided some 208 recommendations to a wide range of consumers.

Should all of these recommendations be implemented an estimated ever-recurring revenue of $40,458 will result.

Close liaison with consulting engineers, architects, builders and electrical contractors has been maintained.

The Electricity Marketing Department organised special evenings for a wide range of consumers in Ingham, Ayr, Home Hill and Townsville.

A highly successful commercial catering evening was conducted in Townsville and attracted some 250 people from as far away as Cairns, Charters Towers and Mackay.

The department also played an active role in the 1972 North Queensland Rural Field Day. The Board's display of electric farming equipment attracted much interest and many useful contacts were established with the rural fraternity.

For the third time since 1968 an advisory officers' training school was convened by the Board. Participants from as far south as Brisbane and as far north as Port Moresby attended the course which catered for such subjects as airconditioning, lighting, irrigation, commercial catering, water heating and material handling. Speakers from interstate presented a number of first class papers which assured participants received the very latest information on modern techniques.

The Homecraft Section completed a full programme of demonstrations both in the districts and in Townsville. Special attention was paid to domestic load building.

With this in mind the scope of the regular weekly television programmes was broadened to include all aspects of electric living. The new programmes, written and produced by the department, included such topics as the planning of adequate wiring for the all electric home, home lighting, building for comfort, airconditioning, choosing the right appliance which featured, in separate programmes, ranges, refrigerators and deep freeze units.

The subsequent demand for information brochures was indicative of the consumer interest in the new programme format.

PATTERN GROWTH

During 1971–72 the growth rate of unit sales to all categories of consumers rose from 7 per cent. to 9·51 per cent. District rates varied considerably. However those above average were Townsville at 11·98 per cent. and Bowen at 14·73 per cent.

Townsville experienced a 13·4 per cent. increase in unit sales to Commercial and Industrial power and with the commencement of construction of the Greenvale project and the further development of service industries, the increase in usage of commercial and industrial power can be confidently anticipated during 1972–73 period.

OPERATION OF THE SYSTEM

Coastal Division

The Ayr–Home Hill 66kV tie line was completed in August 1971, with the erection of two 250-ft. steel towers on the down river side of the Inkerman Bridge. The whole feeder has been re-routed and reconductored to improve the reliability of supply in the Burdekin area.

Iyah–Merinda and Giru–Ayr 66kV transmission lines have been relocated adjacent to roadways to give easier access.

Construction commenced on the first of two 66kV feeders to the new Cranbrook 66/11kV substation site which will be completed in the new financial year.

Extensions to Toolakea and Toomulla Beach resorts at the mouth of Bluewater and Saltwater Creeks were completed and have been well supported by the prospective consumers there, in each case including a number of permanent residents.

The Townsville 11kV system supplying the Upper Ross area, a rapidly developing urban area, has been duplicated by a second 11kV feeder from Louise Street across the river and along the southern bank to recross the river and provide an alternate supply to those consumers.

Cyclone "Althea" which struck on Christmas Eve, 24th December, 1971, caused widespread devastation to the Board's network.

Restoration work caused severe interruption to the planned work programme up to the end of June.

Design work is completed for the extension of the 66kV transmission line to Lannercost substation in Ingham and also for the provision of the 11kV feeders to distribute the supply from the substation.

Supply was extended to the new bulk coal loading facilities at the Bowen harbour.

Distribution system augmentation works in Mary and Mosman Streets and Mosman Hall, Charters Towers, and a rural extension to four consumers north of the city under the rural extension deposit scheme have been completed.

Construction supply has been made available to the nickel treatment plant site near Yabulu with a 4MVA 66/11kV substation.

Installation of five 11kV feeders from Neil Smith 66/11kV zone substation has been completed. This substation with an installed capacity of two 25MVA transformers was commissioned in July 1971, and supplies the inner city commercial area and adjacent high density residential area.

Work is progressing on the installation of low voltage mains in the inner city area to enable the removal of poles in Flinders Street and Sturt Street between Blackwood Street and Denham Street.

Major street lighting schemes recently completed included Angus Smith Drive and street lights in Flinders Street between Blackwood Street and Wickham Street were changed to mercury vapour units with underground supply.

Design work for upgrading of Giru 66/11kV substation to cater for load growth is well advanced and transformers are on order.

Western Division

Generation.—Hughenden power station continued reliable and economical operation with a thermal efficiency on units sent out of 35·4 per cent.—the same as the previous year. A maximum demand of 3,000kW was recorded in both July and August, 1971. This was 180kW less than the record MD of 3,180kW during the extremely cold June of 1971. On 24th July, 1971, a new record output of 46,400kWh in 24 hours was achieved. The average maximum demand for July, 1971 was 2,606kW. This is also a new record.

Units sent out from Hughenden power station were 13,117,565kWh for the year of 53 weeks—an increase of only 2·9 per cent. over an equivalent period last year. However, system losses for transformation, transmission and distribution were reduced to 14·5 per cent. by the availability of all system reactors; the increase in energy sold being 4·9 per cent. over an equivalent period last year.

At McKinlay power station the old National single cylinder, horizontal diesel engines were replaced by four-cylinder, high-speed McLaren prime movers ex Julia Creek to ensure reliability of supply to this unattended station, the output of which was 49,913kWh—an increase of 16·4 per cent. over an equivalent period the previous year. The maximum demand was again 16kW.

The stand-by stations at Winton, Julia Creek and Richmond of 1,080kW, 560 and 235kW installed capacity respectively, were operated a total of 168 hours on 30 occasions during the year; 87½ per cent. of the time due to failure of transmitted supply or line maintenance, 12½ per cent. for testing of the new Julia Creek plant in parallel with Hughenden.

Charters Towers power station operated 40 hours in December, 1971 to maintain restricted local supply following failure of transmitted supply due to cyclone "Althea". With completion of alternative supply to the city, this plant of 1,515kW installed capacity is to be disposed of.

Regional Service through the District Offices

For the convenience of consumers, the Board maintains district offices in the principal cities and towns throughout the region of supply.

The region is divided into five coastal districts and one western division, from which the following statistics for the 1971–72 financial year were derived.

REGIONAL STATISTICS

Townsville District

In the Townsville District 22,757 consumers utilised 251,600,045 units of electricity during the 1971–72 year, 783 miles of overhead and underground construction were involved and the total expenditure including capital works and maintenance amounted to $2,283,130. This figure included $577,695 associated with cyclone "Althea".

Ayr District

In the Ayr District 7,260 consumers were provided with 72,243,136 units of electricity through a reticulation of 1,152 miles. The expenditure associated with the implementation of the capital works and maintaining the system amounted to $444,672 which included $38,831 associated with cyclone repair.

Ingham District

In the Ingham District 597 miles of line provided 4,823 consumers with 31,073,734 units of electricity and $310,546 were incurred in the maintenance of the system. $30,580 were directly associated with cyclone repairs.

Bowen–Collinsville District

29,662,301 units of electricity were utilised by 3,161 consumers through a reticulation of 406 miles, capital works and maintenance totalled $138,774 inclusive of $2,220 associated with the cyclone.

Charters Towers District

In the Charters Towers District 2,510 consumers were supplied through 593 miles of line with 15,235,767 units of electricity. Expenditure on capital works and maintenance totalled $169,536 which included $13,144 of cyclone repairs.

Western Division

The Board is the authority for the generation and distribution of electricity to consumers in the Flinders, Richmond, Winton and McKinlay Shires. Supply is provided through a network of 1,728 miles of transmission and distribution lines to 2,025 consumers. Over the 1971–72 year these consumers utilised 11,215,897 units. The total expenditure by the Board in the Western Division amounted to $478,325.

MANAGEMENT AND ADMINISTRATION

Staff Training

A total of 507 members of the staff attended 67 internal and external training courses during the year.

The statistics for 1971–72 are as follows:—

Type of Training	No. of Courses	Total Attendance	Man-Hours of Training
External Courses ..	48	170	2,455
Internal Courses ..	19	337	2,838
Total	67	507	5,293

The internal training courses were attended by typists, meter readers, clerks, sub-accountants, advisory officers, trades assistants, linesmen, foremen, supervisors, layout officers, district officers, and engineers.

Staff from all levels were selected to attend a wide range of external training courses. These courses were conducted by such organisations as Southern Electric Authority of Queensland, Australian Institute of Management, National Safety Council of Australia, Australian Computer Society, International Computers Ltd., Australian Society of Accountants, Electricity Supply Association of Australia, Electricity Development Association of Queensland, Postmaster General's Department, Department of Primary Industries, Department of Labour and Tourism and Adult Education.

In addition to the continuous on the job training for apprentices the following schools were conducted:

First year apprentices—Thirteen weeks school to familiarise apprentices with basic hand tools and machine tools.

Second year apprentices—Wiring school.

Third year apprentices—Appreciation of drawings course cable school.

Fourth year apprentices—Appliance servicing school specialised lectures.

Accommodation

A new office and showroom have been constructed at Richmond to replace the old wooden structure which was destroyed by fire on 28th May, 1971. The 1,420 sq. feet (132 sq. metre) single storey building was designed and constructed by Board staff and opened for business on 22nd November, 1971.

New loan stores have been established at Richmond and Julia Creek and a new depot/store purchased and fitted out at Bowen. Security fencing and lighting have been erected at both Bowen office and Bowen depot/store.

The head office amenities room on the third floor has been airconditioned and a replacement condenser is on order for the main airconditioning system of the building.

The mezzanine floor of the trading store at Garbutt depot has been extended to provide additional storage space for the record turnover of appliances. This building, together with the pool, garage and amenities buildings at Garbutt, sustained serious roof damage during cyclone "Althea". These, together with head office suncontrol louvres, were repaired under insurance claims.

Planning is well advanced in developing our workshops and stores complex at Garbutt depot and vacating rented premises at Mackley Street and Townsville power station.

The new access road to Garbutt depot, associated with the reconstruction of Woolcock Street by the Main Roads Department is under construction.

Data Processing

Usage of the Board's computer has increased as a result of the implementation of a number of new systems. Systems which are now operational include consumer billing, payroll, transport costing, pole records together with a number of engineering applications and payrolls for other organisations.

As a result of increased computer usage there has been a need to expand the ancillary data handling facilities. Additions purchased or leased during the year include high speed decolator and a forms cutter as well as additional data preparation equipment. A lease has been signed with IBM to cover the Board's data preparation needs for the next two years.

A greatly increased throughput has been achieved in the data preparation section which has enabled additional work to be undertaken without a corresponding increase in machine numbers. Measured output from the section now compares most favourably with national standard.

The Board has continued to participate in the activities of the Queensland 1900 Users Association and a representative from the Board attended a "National Conference of 1900 Users" held in Brisbane. The Board continues to gain as a result of the interchange of information with other users which has been made possible by our membership of this organisation.

Safety

During the 1971–72 period, safety awards were won by employees in Ingham, Bowen, Collinsville, Hughenden, Richmond, Julia Creek, Winton and in Townsville the live line, line construction and test sections were successful in completing a full year without an injury involving time lost from work.

Apprentices who have worked with a group which won a safety award were also given an award even though their time with the group may have been short.

The Chairman, Councillor W. O Garbutt and Board Members, Councillors S. C. Yardley and J W. Barr assisted the Manager in making the presentations in their respective districts.

Resuscitation Training Course

A course for first-line supervisory staff in resuscitation was conducted in which 59 completed the course and passed the theory and practical examinations Some of these staff also studied pole rescue techniques. Certificates to indicate competency to train other employees are presently being presented to these staff members

Production Department

The Board has introduced a production engineering department into its organisation structure

The primary objectives of this department are related to production planning, methods and control The well established production engineering techniques, at present associated mainly with private enterprise are being adapted to suit our semi-governmental type electricity supply industry.

The department is headed by an electrical engineer and supported by a small staff with accounting, supervisory and clerical experience.

Initially the department's activities have been associated mainly with works scheduling and system procedures.

Appreciation

We have pleasure in recording our appreciation for the valuable contribution made towards the successful operation of the organisation during the past year by all employees.

Those who planned, designed and constructed our system, those who operated our various assets and staff generally, all gave of their best to maintain a high standard of service to the public we serve.

ACTIVITIES OF THE BOARD

Sub-transmission and distribution of electricity in the Coastal Division.

Generation, transmission and distribution of electricity in the Western Division.

Merchandising of electrical appliances.

Supervision of consumer installation standards.

Provision of domestic, rural, commercial and industrial consumer advisory services.

CYCLONE "ALTHEA"
THE BOARD'S GREATEST EMERGENCY

Massive damage was incurred on the Townsville distribution system early on Christmas Eve when Cyclone "Althea", with winds in excess of 100 m p h., struck the city and district.

Staff from the Northern Electric Authority, the Army, electrical contractors, electricity supply industry and staff from Toowoomba, Ipswich, Brisbane, Maryborough, Rockhampton, Mackay, Innisfail and Cairns joined with T.R E.B. staff to restore supply to 23,000 Townsville consumers in the record time of eight days.

Outstanding assistance by the Salvation Army's Mancare centre and other women volunteers provided hot meals for staff in the field.

In the Board's Ayr district consumers whose premises and installations were in a condition to receive supply, were re-connected within four days following the cyclone.

Damage to the system in the Board's Ingham district was widespread and severe and supply to the town and surrounding areas was not secured until Wednesday, 29th December.

In the Bowen district supply to the Bowen township was interrupted when both of the main feeders were cut by flying debris in the early hours of Christmas Eve

Restoration work continued on a priority basis until practically all consumers were restored by 9 o'clock the same night.

In the Charters Towers district limited supply from the standby plant in the city was made available on a rotational basis to essential services and some domestic consumers

Although lightning and rain storms were experienced throughout the Board's western division during and after the cyclone, winds were light and only minor interruptions to supply had occurred.

The following are details of the cost of restoration work throughout the Board's region·—

	$
Townsville District	577,695
Ayr District	38,831
Ingham District	30,580
Bowen District	2,220
Charters Towers	13,140
Western Division	Nil
Region Total	662,470

The Board sincerely appreciates the tremendous help and assistance given by the many people during the critical period following the cyclone; without so much help the restoration period would have been greatly extended

COMPOSITION OF THE TOWNSVILLE REGIONAL ELECTRICITY BOARD

Chairman

Councillor W. O. GARBUTT, O B E. (Shire of Hinchinbrook);

Members

Alderman L. F. POWER, Ph D, B Sc, B Com, A.A.S A, A A U Q, F.C S, A.R A C I (Deputy Chairman)—(City of Townsville);

Alderman C. S. ARNOLD, A R A I A. (City of Townsville);

Councillor R. W. ROSSITER (Shire of Ayr);

Alderman T. H. A TITLEY, M.C, F A S A, A C I S., L G (City of Charters Towers and Shires of Thuringowa and Dalrymple);

Councillor S. C. YARDLEY (Shire of Bowen);

Councillor J. BARR (Shires of Flinders, Richmond, McKinlay and Winton),

Mr. E. D. MURRAY, M.C, B.E., F I E.E, F.I E.Aust, F A I M (Commissioner for Electricity Supply).

SENIOR ADMINISTRATIVE AND TECHNICAL STAFF

Manager

G. E. PARTLETT, A.S.T.C., M I E Aust., M.I Prod.Eng (London), F.A I M

Distribution Engineer

D PEARSE, B.Tech, F.I.E Aust., M I.E E.

Secretary

E. D. BOURKE, A.A S.A., A C.I.S.

ADDRESS OF BOARD 21 Stokes Street, Townsville

The pictures on this page give an idea of Cylone "Althea" damage in Townsville and of the task which faced the Townsville Regional Electricity Board.

TOWNSVILLE REGIONAL ELECTRICITY BOARD

GENERATION STATISTICS
(for year ended 30th June, 1972)

Item	——
Installed capacity (kW)—Thermal	7,922
Hydro	..
Total	7,922
kWh generated—Thermal	13,420,751
Hydro	..
Total	13,420,751
kWh used in works	180,178
kWh sent out	13,240,573
Maximum demand (kW) (generated)	3,016
Annual load factor (%) (generated)	50·9
Coal consumed (tons)	..
Calorific value of coal (BTU/lb.)	..
Furnace oil consumed (tons)	..
Calorific value of furnace oil (BTU/lb.)	..
Diesel oil consumed (tons)	3,099
Calorific value of diesel oil (BTU/lb.)	18,750
Overall thermal efficiency (%)	35·2
Overall fuel cost/kWh generated (c.)	·924

ENERGY PURCHASES, &c.
(for year ended 30th June, 1972)

Item	——
kWh purchased from N.E.A.	428,970,327
kWh purchased from R.E.B.'s	533,600
kWh purchased from other sources	..
Total kWh purchased	429,503,927
Cost/kWh purchased (c.)	1·400
System maximum demand (kW) including generated	90,106
System annual load factor (%) including generated	55·9

LINE MILEAGE
(at 30th June, 1972)

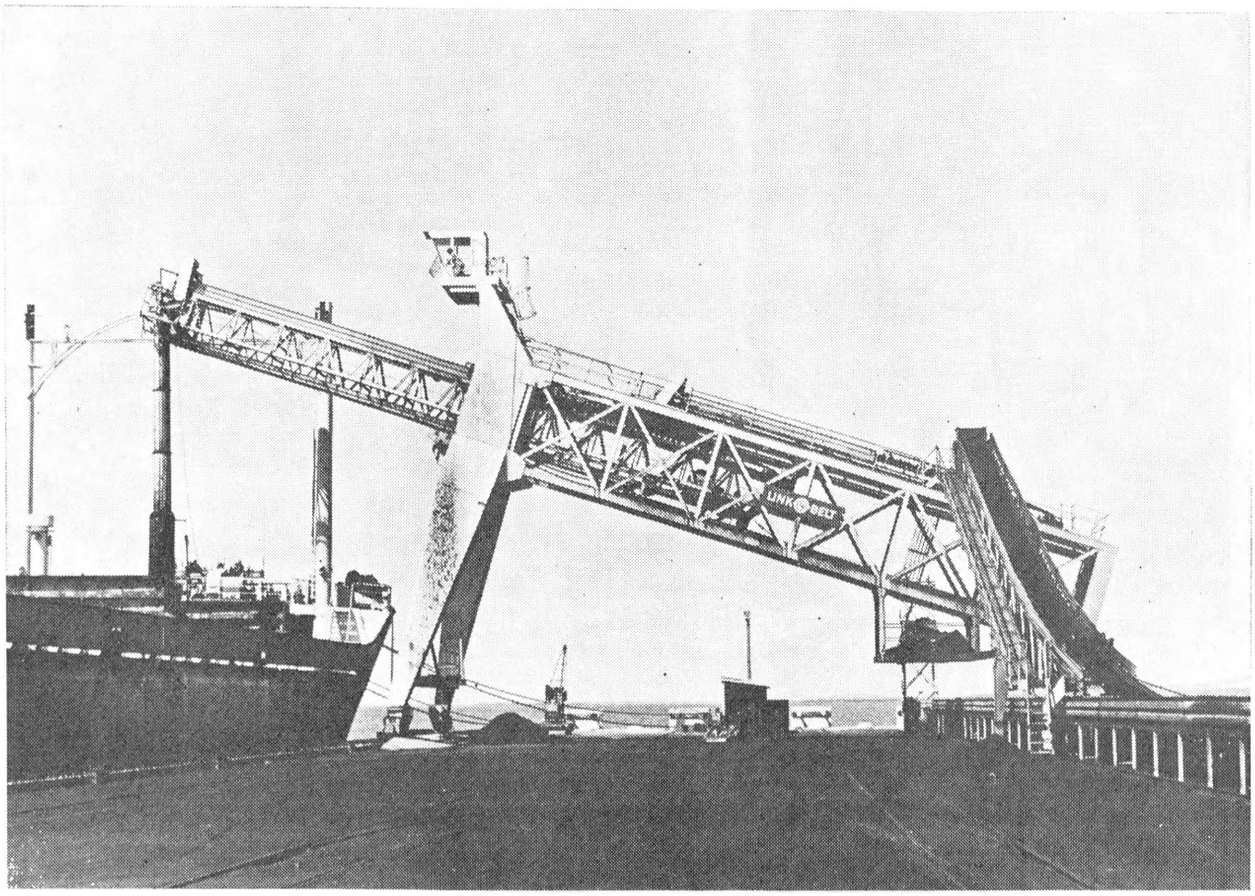
Designed Voltage	Circuit Miles
High Voltage—	
66kV	526·60
33kV	376·50
11kV	1,437·00
6·6kV	29·30
S.W.E.R. 19·1kV	1,592·10
Sub Total H.V.	3,961·50
Low Voltage	1,297·40
Total	5,258·90

SUBSTATION STEP-DOWN TRANSFORMER CAPACITY
(at 30th June, 1972)

Type	Step-down Capacity kVA
132kV and above	..
33kV to 110kV	178,170
22kV and below including S.W.E.R.	244,355
Total	422,525

MISCELLANEOUS STATISTICS
(for year ended 30th June 1972)

Item	——
Domestic sales (kWh)	162,050,754
Increase over previous year (%)	5·6
Total sales (kWh)	410,244,280
Increase over previous year (%)	9·3
Capital expenditure ($m)	1·892
Total Revenue (Per Operating Revenue A/c) ($m)	11·665
Total Expenditure (Per Operating Revenue A/c) ($m)	11·950
Area of operations (square miles)	102,000
Population of area (1971 Census)	133,399
Personnel Employed	607



Coal loading facilities at Bowen harbour added 500kVA to the system.

APPENDIX XI

CAIRNS REGIONAL ELECTRICITY BOARD

ANNUAL REPORT FOR THE YEAR ENDED 30TH JUNE, 1972

The Commissioner for Electricity Supply,
State Electricity Commission,
Brisbane.

Dear Sir,

We present the Twenty-sixth Annual Report of the Board's activities covering the financial year ended 30th June, 1972.

The only change in appointment of Board members during the year was that occasioned by the retirement of Mr. H. Neil Smith, I.S.O., B.A., on 21st January, 1972. We wish to place on record our appreciation of the contribution Mr. Neil Smith made to the development of the Electrical Industry in Queensland, and extend our best wishes to you in your appointment.

Sales of Electricity totalled 234·793 million kWh. This is an increase of 5·56 per cent., and details are set out under Electricity Sales.

The Operating Revenue Account shows a loss of $219,749 compared with a profit of $106,637 last year.

PURCHASE AND GENERATION OF ELECTRICITY

Purchases of electricity from the Northern Electric Authority of Queensland at bulk supply substations for the year ended 30th June, 1972, totalled 253·188 million kWh as follows:—

Bulk Supply Substations	kWh Millions	Per Cent. Variation over 1970–71
Cairns	115·338	+ 9·2
Innisfail	43·144	+ 3·3
Tully	15·059	+ 0·2
Kareeya	39·244	− 5·1
Turkinje	39·150	+ 5·7
Sugar Mills	1·253	..
Total	253·188	+ 4·7

Purchases for the coastal areas supplied from bulk supply substations at Cairns, Innisfail and Tully showed an increase of 6·9 per cent. for the year. Purchases for the Tableland areas supplied from Kareeya and Turkinje substations were practically the same as for last year. The Tableland Tin Dredging N.L. tin dredge was rebuilt during the year and commenced consuming at the new site at Coolgarra during April 1972.

The units generated at the Board's isolated diesel power stations at Thursday Island, Georgetown and Normanton amounted to 4·153 million kWh. Details are set out under Isolated Undertakings.

The maximum co-incident demand of the Board's interconnected system, metered at the five bulk supply points, was 54·94MW. This demand occurred on 14th June, 1972, at 6.30 p.m.

The increase in maximum demand over the previous financial year amounts to 6·53%.

NUMBER OF CONSUMERS

The total number of consumers increased by 1,125 (3·5 per cent.) to a total of 33,283 at 30th June, 1972.

The number of consumers by classes is set out in the following table:—

Class	1971–72	1970–71	% Increase
Residential	25,667	24,706	3·89
Commercial	4,056	3,976	2·01
Industrial	3,542	3,458	2·43
Public Lighting	18	18	..
Total	33,283	32,158	3·50

ELECTRICITY SALES

Total Sales of Electricity increased by 12·4 million kWh to 234·793 million kWh, an increase of 5·56 per cent.

Details of Sales are set out in the following table:—

Sales	kWh Millions		Variation
	1971–72	1970–71	
Main System—			
Domestic and Farm Consumers	79·082	73·887	+ 7·03%
Water Heating	47·637	44·501	+ 7·05%
Commercial and Industrial Consumers ..	101·585	97·968	+ 3·69%
Street Lighting	1·842	1·871	− 1·54%
Board Usage	1·135	1·086	+ 4·48%
Total Main System ..	231·281	219·313	+ 5·46%
Isolated Undertakings—			
Thursday Island, Georgetown and Normanton	3·512	3·080	+ 14·02%
Regional Total ..	234·793	222·393	+ 5·56%

The average price per unit sold was 2·947 cents compared with 2·797 cents the previous year, an increase of 5·36 per cent.

TARIFFS

Street lighting tariffs for the main system area were increased from 1st July, 1971. The amended rates were applied uniformly to all parts of the region—i.e., to the main system plus the isolated centres of Thursday Island, Georgetown and Normanton. All other tariffs for the main system area were increased by approximately 5 per cent. on 9th October, 1971. The tariff rates applicable to the isolated centres were not altered.

An Industrial All-purpose Two-part Demand Tariff was introduced on 9th October, 1971, for high voltage supply to major industrial consumers.

FINANCIAL REVIEW

The net loss for the year was $219,749 as compared with a net profit of $106,637 in the previous year. The net loss was due to escalation of expenditure, mainly salaries, wages and materials, at a faster rate than income.

Income

Operating income was $7,100,325 which was $698,755 (+10·92 per cent.) above the previous year. Sales of electricity earned $6,941,611 and the balance of $158,714 was received from interest on investments, sale of assets and scrap materials.

Expenditure

Operating expenditure for the year totalled $7,320,074 an increase of $1,025,141 (+16·29 per cent.) over the previous year.

As a result of the increase in sales, the purchase of electricity in bulk was correspondingly increased by $381,252 (+16·65 per cent.).

Other notable increases in expenditure as compared with last year were Generation by $64,983 (+46·72 per cent.), Transmission and Distribution $307,425 (+22·04 per cent.), Management $81,262 (+13·52 per cent.), Loan Charges $97,905 (+9·91 per cent.) and Depreciation $98,059 (+12·47 per cent.).

OPERATING FUND

Cash transactions during the year resulted in a deficit of $25,991.

SPECIAL FUND

The credits held in Special Fund at 30th June, 1972, as compared with those of the previous year were:—

——	1972	1971
	$	$
Special Fund	1,339,494	977,451
Maintenance Reserve	249,543	249,543
Capital Works Reserve	219,676	132,890
Sinking Fund for the repayment of the balance of Rural Extension Deposits at the end of the 15 year agreement	22,161	15,623
$	1,830,874	1,375,507

The only transactions in the fund were the receipt of cash transfers from Operating Fund as follows:—

Operating Fund Surplus 1970-71	$362,043
Capital Works Contributions	$86,786
Contribution towards Sinking Fund for repayment of Consumers' Extension Deposits	$6,538
	$455,367

TRADING FUND

During the year the Board continued its activities in carrying out recoverable service work for consumers on their installations and appliance repairs and in the trading of electrical appliances with the primary objective of promoting the use of electricity by consumers.

The income from recoverable work for consumers, including appliance servicing, and from appliance trading was $669,587. Expenditure, which includes allocated costs from our general operations and direct costs associated with appliance selling and recoverable works from consumers and including interest, advertising, etc., exceeded income by $41,001.

Sales of appliances exceeded the budget target but cost increases have been proportionately greater.

The Board extends its trading operations to small centres and country areas in its region to provide facilities of a high standard.

Measures to increase the efficiency of operations under the Trading Fund are kept continuously under review to obtain a greater turnover and to overcome problems associated with rising costs.

CAPITAL EXPENDITURE

Expenditure on new works amounted to $1,292,580 as follows:—

	1971–72		1970–71	
	$	$	$	$
Generation (Isolated Power Stations)		44,172		84,177
Main Transmission		26,356		6,619
Distribution—				
Extensions and Routine Works	386,430		364,635	
Augmentations and Improvements	419,206		450,396	
Public Lighting	49,018		46,739	
Development Works	67,687	922,341	27,449	889,219
Miscellaneous—				
Land, Buildings, Plant and Stores (Net)		171,266		228,323
Engineering and Administration Charges		128,445		102,116
Recoverable Works—				
Department of Aboriginal and Island Affairs				21,566
Total Expenditure		$1,292,580		$1,332,020

CAPITAL FINANCE

Expenditure on Capital Works in 1971–72 was financed as follows:—

	$
Balance of Funds as at 1st July, 1971	7,720
Proceeds from S.E.C.Q. Loans	1,250,000
Extension Deposits from prospective consumers	51,847
Unconditional Contributions	30,080
Payment by Department of Aboriginal and Island Affairs for construction of electricity supply schemes in the Northern Peninsula area (completed in 1970–71)	6,037
	1,345,684
Balance of Funds as at 30th June, 1972	53,104
	$1,292,580

Augmentations and Improvements to Transmission and Distribution

TRANSMISSION

Planning

The Regional Joint Planning Committee comprising members of the Boards and the Northern Electric Authority's staff met several times during the year to co-ordinate forward planning of the main transmission system and bulk supply point substations.

Tableland Region

(*a*) *Atherton* 66/22kV *Substation*

The foundation and site preparation works for the 30 MVA 66kV regulator are completed. We expect delivery of the regulator early in 1972-73 financial year.

This regulator installation is required to provide continued alternative supply to the Tablelands region from Kareeya 66kV bulk supply point.

(*b*) *Mossman 66/22kV Substation*

Voltage regulators were installed on the three 22kV feeders and the 22kV lines were re-arranged to connect the 22kV feeder from Mt. Molloy direct onto the busbars. This work enables voltage to be maintained for alternative supply from Mt. Molloy substation.

Preliminary investigations were made into alternative routes for the proposed second 66kV Mareeba-Mossman transmission line.

(*c*) *Communications*

Equipment is on order for installation of power line carrier between Atherton and Evelyn 66/22kV substations and a radio link between Evelyn and Mt. Garnet 66/22kV substations.

These communication links will provide both telephone and supervisory control and indication channels between Atherton, Evelyn and Mt. Garnet substations.

Coastal Region

Agreement has been reached with the Northern Electric Authority regarding the location of a future bulk supply point in the Coastal area to the north of Cairns.

DISTRIBUTION

Augmentation and Improvements

The accelerating growth in the Cairns region over the past few years has again reflected in the volume of distribution works undertaken.

Some of the more notable works are as follows:—

(*a*) *Cairns District*

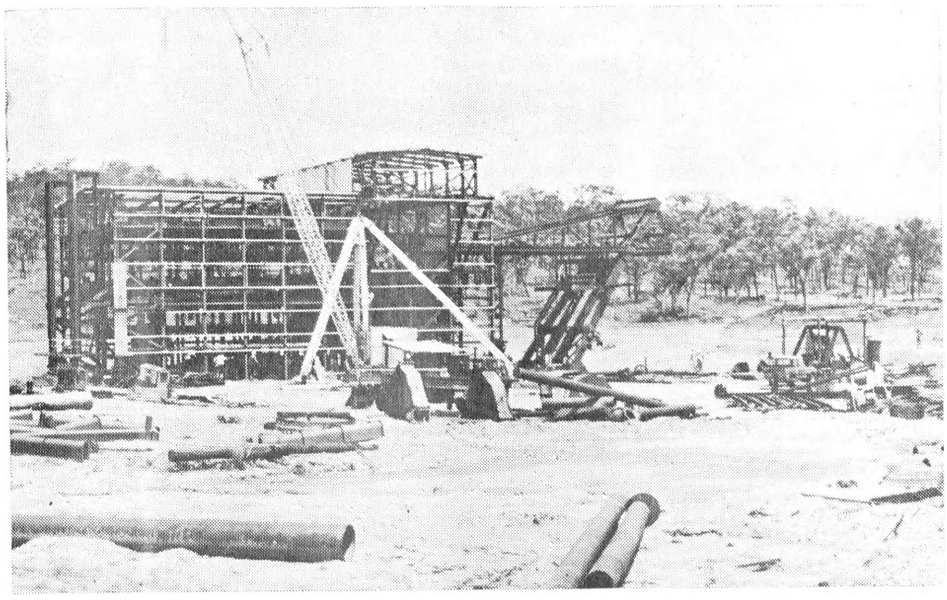
A 22kV interconnector from the Cairns Bulk supply point to Cairns City substation was built along Hartley Street. A small section of line in Spence Street is yet to be augmented to provide the two heavy interconnectors between these substations.

Work is in progress with conversion of the remaining 6·6kV substations to 22kV in the Cairns City area.

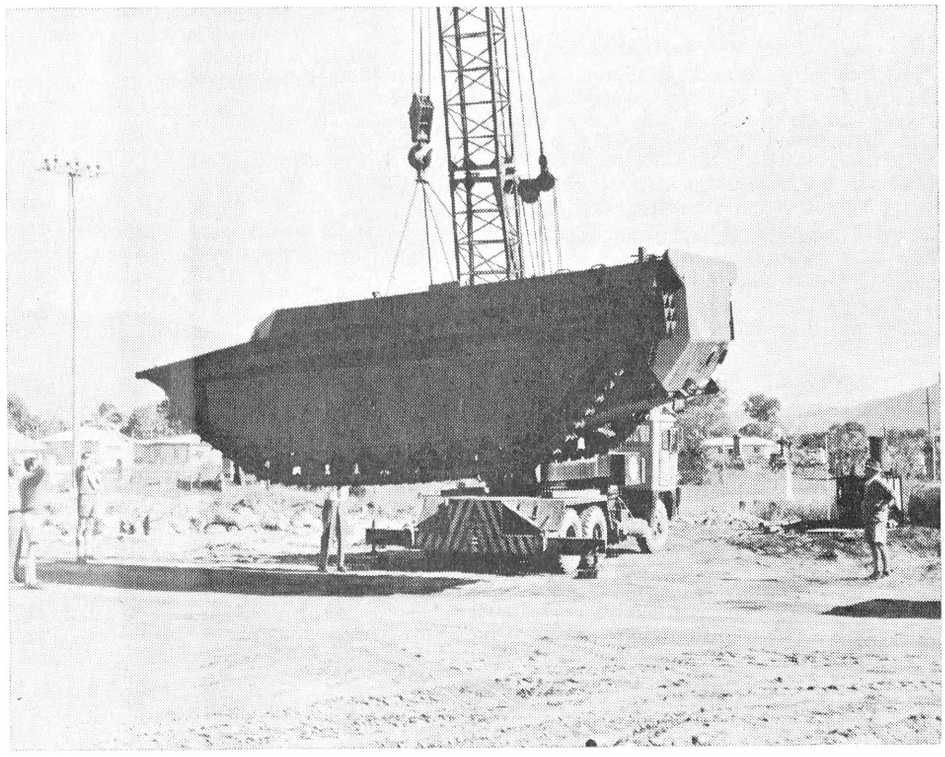
New 500 kVA substations were provided at Cominos Arcade and A.L.&S. Supermarket in Cairns.

The substation at the Cairns Base Hospital was augmented to 2 x 1,000 kVA to provide for the new hospital block.

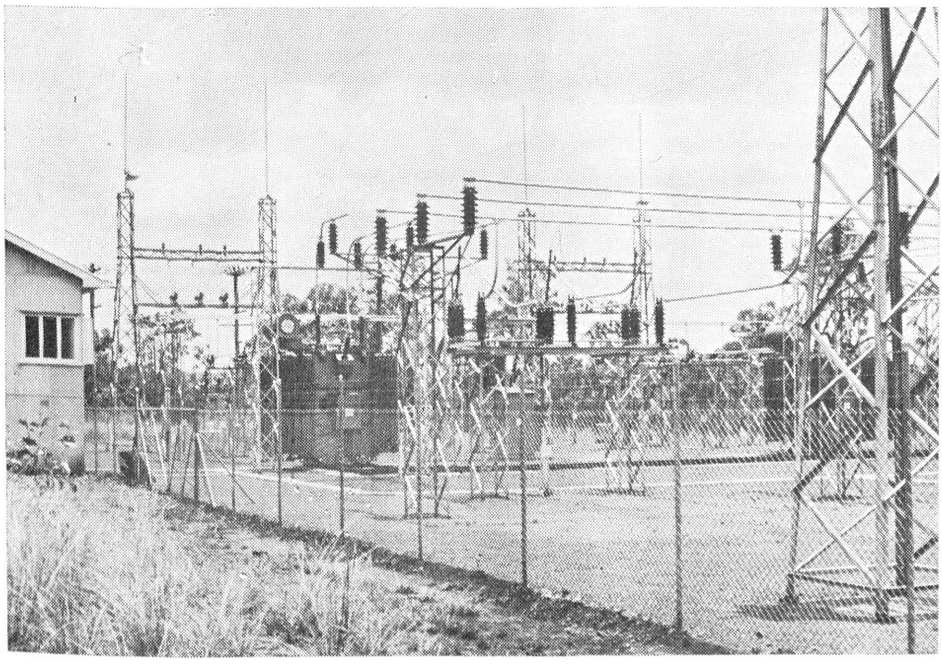
Underground mains were provided to consumers in Abbott, Lake and Shields Streets from existing underground cables.



Tin dredge being re-erected at Coolgarra near Mt. Garnet.



Amtrac Vehicle for Maintenance — Daintree-Cooktown Transmission Line.



Mt. Garnet Substation.

The Board provided assistance to the Contractors for the Mt. Bellenden Ker Cableway Project in installing the substation on the summit.

At Gordonvale 22kV substation a bus zone protection scheme has been installed.

(*b*) *Tableland District*

The reconductoring of the 22kV feeder from Atherton to Herberton was completed. This was a very old line and the conductors were failing due to conductor fatigue.

In association with installation of a new casein plant at the Atherton Tableland Co-operative Butter Association Factory at Malanda the 500 kVA substation was augmented to 1000 kVA.

Isolating transformers were removed from four 12·7 kV SWER schemes in the vicinity of Millaa Millaa for voltage improvement.

(*c*) *Innisfail District*

The new 22kV feeder from Innisfail bulk supply point to Mourilyan was completed.

To enable the Mourilyan Bulk Sugar Shed to be extended the 22kV line and transformer cables were relocated.

(*d*) *Isolated Areas*

The 150 kVA substation at Norshrimp Factory at Thursday Island was augmented to 375 kVA to enable the connection of a 150 H.P. refrigeration plant.

RADIO COMMUNICATION

A new VHF radio base station was established at Mossman on the Rex Highway to give improved mobile radio reception in the Mossman area and to extend communication north along the 22kV Cooktown line. A VHF radio base station was installed at Cooktown and fixed masts in the Helenvale and Bloomfield areas to give better radio coverage on the remote and inaccessible 22kV line.

At Mareeba new equipment was installed at the VHF radio base station to comply with the Australian Post Office requirements on narrow band working.

Our fleet of mobile VHF radios is being converted to comply with Post Office requirements.

NEW CONSUMERS AND EXTENSIONS

The growth of work for unspecified extensions continued for both urban and rural with a rise of more than 50 per cent. on urban expenditure caused once again by increased building activity in the Cairns City area and immediate vicinity.

A 22kV extension along the Mulligan Highway from Maryfarms to Mt. Carbine was completed to supply R. B. Mining Pty. Ltd., a company starting mining operations in the Mt. Carbine town area. Negotiations are in hand for supply to local residents. Another mining company, Loloma Mining Corporation N.L. was supplied at Jumna Creek near Irvinebank.

High voltage extensions with necessary substations and low voltage reticulation were carried out for three additional beach resorts. Tully Heads near Tully, Garners Beach outside El Arish and Bramston Beach south of Babinda.

In the Chillagoe district a short extension and substation were erected to supply the Donna Caves for the Forestry Department.

SUMMARY

The following table summarises the net additions to the Board's distribution system during the year.

Item	Net Additions	Present Total	Per Cent Increase
Overhead Distribution Lines—	Miles	Miles	%
H.V. (up to 22kV) ..	25·65	2,030·45	1·28
L.V.	13·45	1,081·36	1·26
Underground Distribution Cables—			
H.V. (up to 22kV) ..	0·33	9·30	3·68
L.V.	1·04	7·76	15·48
Distribution Transformers—			
No. in service	72	2,805	2·63
Capacity in kVA	5,855	147,545	4·13

FLOOD DAMAGE—MAREEBA DIMBULAH AREA

Heavy floods in the Barron and Walsh River systems on 8th and 9th March, 1972, caused considerable damage to consumers pumps and to some Board equipment and reticulation.

Other damage included poles washed out, erosion at base of poles and poles leaning due to pressure of water.

STREET LIGHTING

Part of the Mulgrave Road high intensity lighting scheme from the Fiveways to the end of the Showgrounds has been completed and some additional lights erected in the vicinity of the Aumuller Street intersection. All these lights were erected on steel standards (23 in number) with underground wiring. Each steel standard is fitted with 2 lights 400 and 250 watt colour corrected mercury vapour and the scheme conforms with the latest requirements of the Australian Standard Lighting Code for high intensity highway lighting.

Additional intersection lighting was erected in Sheridan Street north of Charles Street and the lighting of Main Street, Atherton was extended in the direction of Herberton Road by the addition of 10, 125 watt and 9, 250 watt mercury vapour lights replacing 6 obsolete 120 watt fluorescent lights.

The first installation of pedestrian crossing floodlighting in the region was completed outside the Cairns Base Hospital.

Total street lights erected throughout the area during this year are as follows:—

——	Wattage	No. of Lanterns
Fluorescent	Twin 20	66
Mercury Vapour	125	26
	250	56
	400	23
Mercury Vapour Narrow Beam Floodlights (Pedestrian Crossing)	400	3
Solium Vapour	Group 1 (30–45W)	4
	Group 2 (50–60W)	11
	Group 3 (80–100W)	8

ISOLATED UNDERTAKINGS

Small diesel power stations are operated to provide electricity supply at Thursday Island, Georgetown and Normanton. Generation figures for these stations are:—

Station	Installed Capacity kW	Maximum Demand kW	Units Generated kWh Millions
Thursday Island ..	1600	680	3·087
Georgetown	174	78	0·313
Normanton	300	172	0·753
			4·153

Thursday Island

The installation of a 500 kW Ruston generating set purchased from the Papua and New Guinea Electricity Commission was completed and the set commissioned.

Two air cooled heat exchangers for use with the two 500 kW Ruston sets were also commissioned.

Georgetown

A study of the relative economics of augmenting the local generating plant, and extending transmitted supply 135 miles from Mt. Garnet was completed. The study indicated that a further stage of augmentation of local generating plant could be undertaken before considering transmitted supply. Augmentation will be required by 1973-74.

Normanton

A new residence was erected in Brodie Street for the Works Superintendent, and the residence in Landsborough Street was renovated and is now occupied by the Engine Driver engaged for this centre.

The old 16 kW sets and cooling tanks were removed from the power station and the power station building was painted.

BUILDINGS AND CIVIL WORKS

A new distribution depot was constructed at Pollards Road, Babinda. A new residence is being constructed at this site.

The engines and foundations were removed from the old Cooktown Power Station and the building was converted for use as a distribution depot.

The roadway adjacent to the Central Stores issuing area at Cairns was bitumen sealed to reduce road maintenance costs and dust nuisance.

Modifications were made to an existing building at Atherton for use by distribution foremen.

INSPECTION OF CONSUMERS' INSTALLATIONS

A total of 1,199 new consumers were connected to the Board's supply increasing the total connected load by 45,727 kW.

This is a substantial increase over last year when 772 new consumers were connected and the total connected load increased by 33,260 kW.

The major electrical appliances connected included 1,220 ranges, 111 permanently wired air conditioners, 1,491 storage water heaters, 141 instantaneous heaters and 47 wash boilers.

PROMOTION OF THE USE OF ELECTRICITY

The promotion of the use of electricity was continued throughout the year. Our Homecraft Advisory Service continued to provide cooking demonstrations for television and live audiences in addition to house calls.

The Board, in association with an electrical appliance manufacturer, provided and installed electric ranges in various schools throughout the region.

The Board continues to support the Electrical Development Association of Queensland to promote the economic development of the whole of the electrical industry in the State.

ADVISORY SERVICE TO CONSUMERS

The Board provides an advisory service to provide information and advice on a wide range of applications to assist consumers with the efficient and economical use of electricity.

Installation wiring recommendations and air conditioning surveys were carried out to assist consumers select the most suitable equipment for their installations.

Other advisory work included water heating, commercial refrigeration, sawmill motors and flitch treatment, irrigation pumping, special lighting designs for commercial and industrial consumers, including Donna Caves lighting at Chillagoe, motel and caravan park installations, and soil warming and tobacco curing installations.

PUBLIC RELATIONS

The Board displayed electrical appliances and demonstrated electrical processes at district shows at most centres throughout the Region and floats were entered in festival processions.

Administration buildings at Cairns and Innisfail were also decorated on these occasions and for the Christmas-New Year period.

The Board records its appreciation of the voluntary assistance rendered by staff on these occasions.

CONSUMER SAFETY

The Board this year as in past years, gave lectures to Grade 8 students at the High Schools in Innisfail and Cairns. Board Officers lectured on safety to groups of farmers and cane harvester operators in the Hambledon and Mulgrave Mill areas. They also lectured on safety to operators and owners of cane harvesting machinery at Williams Estate.

INDUSTRY SAFETY

The Board's accident frequency rate for 1971 was 10·4, well below the previous best of 23·63 achieved in 1969 and was the second lowest recorded by any electrical supply authority in Australia during 1971.

This record was highlighted by Board employees recording their first 500,000 lost-time accident-free man-hour target.

Several individual Board departmental safety groups recorded safety targets well in excess of 100,000 man-hours. The Tully group created a Board record by completing a 5 year lost-time accident-free period.

The downward trend in the number of lost-time accidents is continuing and we hope to maintain the improvement in the Board's safety record in 1972.

FIELD DAY

A successful Field Day was held in Innisfail in September 1971.

Distribution staff from Cairns, Mossman, Mareeba, Atherton, Ravenshoe, Tully and Innsifail attended the event and witnessed demonstrations on improved Line Vehicle lay-out, problems with single consumer substations, L.V. fault current dangers, operation of lifter borers on uneven ground, H.V. line earthing, conductor sag charts and sagging. Examples of employees suggested improvements to existing equipment and methods were also displayed and discussed.

The Board's annual Pole Top Rescue Competition was held in conjunction with the Field Day and was won by Mr. S. V. Bergin of Innisfail with Mr. P. Herlihy, of Millaa Millaa, the runner-up.

A similar competition was conducted as an inter-Board competition by the T.R.E.B. in Townsville. The winner was Mr. O. Sidden, of the Capricornia R.E.B. with Mr. P. Herlihy of the Cairns Regional Board as runner-up.

EMPLOYEE TRAINING

The Board has actively supported the Linesmen's Training School operated by the Southern Electric Authority of Queensland at Rocklea. During the year trainees attended the following courses—

Live Line Training School	2 Linesmen
Linesmen's Training School	5 Trainee Linesmen
Safety and the Supervisor Course for Linesmen	7 Leading Hands and Linesmen.

In addition, 39 of the Board's employees attended courses in Supervisor's Methods and Supervisor's Job Instruction and Job Safety conducted by the Department of Labour, Division of Occupational Safety.

A Works Study Appreciation Course conducted by the Electricity Supply Association of Australia at Brisbane was attended by three of the Board's engineering and administrative officers.

In March the Board conducted the annual five week training course for first year apprentices. Third year apprentices were given a two week training course covering transformers, motors and starters.

LIVE LINE WORK

Two live line gangs have been in operation during the year, one based at Atherton and the other at Cairns.

It was planned to have a 3rd live line gang in operation and based in Innisfail in the last 2 months of the year. However, the heavy commitments of the Southern Electric Authority Training School precluded having the gang trained until July 1972. During the past year the Cairns Gang has been working alternate weeks in the Cairns and Innisfail areas and the Atherton Gang has covered the area from Mossman to the southern end of the Tablelands. The 2 gangs have carried out the following work on high voltage lines without interruption to supply:—

Pole Top Inspections	3,220
New Poles Erected	33
Poles Replaced	139
Crossarms Replaced	205
Insulators Replaced	199

In addition, District Engineers have found more uses for both gangs for isolating sections of 22kV line for work such as line relocating which cannot be done under live conditions. The areas interrupted were minimised by the use of the live line gangs either to carry out part of the line isolation or to erect temporary 22kV links at strategic locations.

EMPLOYEES' SOCIAL CLUB

The Employees' Social Club has been very active during the year. Functions arranged included the Annual Ball, a picnic day at Malanda, a Christmas Cabaret and a Christmas Tree, and a June Cabaret.

The Board is pleased with and appreciates the achievements of the Club. All functions have been well patronised and this has been mainly due to the enthusiasm of the Club's committee.

CONCLUSION

It was necessary to defer some planned maintenance, and some capital works due to the rather prolonged wet season, and to the staff position. However, it is hoped that in the next financial year this accumulation of work will be overtaken.

The success of the year's activities was brought about by the co-operation of the Board members and staff together with the assistance of the State Electricity Commission.

For and on behalf of the Cairns Regional Electricity Board.

C. ST.L. HOLDCROFT, M.B.E., Chairman,
G. RICHARDSON, Acting Manager.

COMPOSITION OF THE CAIRNS REGIONAL ELECTRICITY BOARD

Chairman

Councillor C. St.L. HOLDCROFT, M.B.E. (Shires of Herberton, Etheridge, Mareeba, Carpentaria and Croydon);

Members

Alderman R. E. DAVIS (Deputy Chairman)—(City of Cairns);
Alderman H. D. FRIEND (City of Cairns);
Councillor O R. ANDREWS (Shires of Mulgrave, Douglas, Cook and the Town of Thursday Island);
Councillor B. V. DALEY (Shires of Eacham and Atherton);
Councillor M. J. V. MCNAMARA (Shires of Johnstone and Cardwell);
Mr. E. D. MURRAY, M.C., B.E., F.I.E.E., F.I.E.Aust., F.A.I.M. (Commissioner for Electricity Supply).

SENIOR ADMINISTRATIVE AND TECHNICAL STAFF

Manager

A. D. DOWSETT, B.E.E., M.I.E.Aust.

Distribution Engineer

W. A. WHITING, Dip.Mech./Elect.Eng., F.I.E.Aust.

Secretary

G. RICHARDSON, B.Com., F.A.S.A., F.C.A.A., A.C.I.S., A.M.I.A.

ADDRESS OF BOARD: Lake Street, Cairns.

CAIRNS REGIONAL ELECTRICITY BOARD

GENERATION STATISTICS
(for year ended 30th June, 1972)

Item	——
Installed capacity (kW)—Thermal	2,074
Hydro	..
Total	2,074
kWh generated—Thermal	4,111,185
Hydro	..
Total	4,111,185
kWh used in works	101,718
kWh sent out	4,009,467
Maximum demand (kW) (generated)	937
Annual load factor (%) (generated)	52·9
Coal consumed (tons)	..
Calorific value of coal (BTU/lb.)	..
Furnace oil consumed (tons)	..
Calorific value of furnace oil (BTU/lb.)	..
Diesel oil consumed (tons)	1,133
Calorific value of diesel oil (BTU/lb.)	19,000
Overall thermal efficiency (%)	29·1
Overall fuel cost/kWh generated (c.)	1·068

ENERGY PURCHASES, &c.
(for year ended 30th June, 1972)

Item	——
kWh purchased from N.E.A.	253,188,139
kWh purchased from R.E.B.'s	..
kWh purchased from other sources	..
Total kWh purchased	253,188,139
Cost/kWh purchased (c.)	1·055
System maximum demand (kW) including generated	55,830
System annual load factor (%) including generated	525

LINE MILEAGE
(at 30th June, 1972)

Designed Voltage	Circuit Miles
High Voltage—	
66kV	222·00
22kV	1,836·00
6·6kV	5·00
S.W.E.R. 12·7kV	198·00
Sub Total H.V.	2,261·00
Low Voltage	1,089·00
Total	3,350·00

SUBSTATION STEP-DOWN TRANSFORMER CAPACITY
(at 30th June, 1972)

Type	Step-down Capacity kVA
132kV and above	..
33kv to 110kV	75,000
22kV and below including S.W.E.R.	147,545
Total	222,545

MISCELLANEOUS STATISTICS
(for year ended 30th June, 1972)

Item	——
Domestic sales (kWh)	122,520,195
Increase over previous year (%)	8·6
Total sales (kWh)	234,792,838
Increase over previous year (%)	5·6
Capital expenditure ($m)	1·293
Total Revenue (Per Operating Revenue A/c) ($m)	7·100
Total Expenditure (Per Operating Revenue A/c) ($m)	7·320
Area of operations (square miles)	128,920
Population of area (1971 Census)	109,362
Personnel employed	537

APPENDIX XII

THE CENTRAL WESTERN REGIONAL ELECTRICITY BOARD

ANNUAL REPORT FOR THE YEAR ENDED 30TH JUNE, 1972

The Commissioner for Electricity Supply,
The State Electricity Commission of Queensland,
Box 10, G.P.O.,
Brisbane, Q., 4001.

DEAR SIR,—We have the honour to present the Sixth Annual Report of the Central Western Regional Electricity Board for the financial year ended 30th June, 1972.

Further improvements were made to the operational performance of our plant and far reaching network, and higher standards of supply reliability to consumers were achieved.

The Board has continued to encourage development throughout its large supply region, where drought followed by depression all but wiped out the great wool industry on which the area is basically dependent.

Signs of recovery are now evident and the Board looks forward to the future with greater confidence.

We are grateful to the Commission for their continued support with the Board's programme of electrification in Western Queensland.

Yours faithfully,
(SIR) JAMES WALKER, K.B., M.B.E., Chairman,
R. W. OXENHAM, Manager.

THE YEAR IN REVIEW

The year has been one of consolidation and improvement of our undertaking to keep pace with developments in our area of supply.

We began the year, as did all business enterprises in Western Queensland, unaware that the economic recession aided by drought, would deteriorate even further until practically the whole of our region was proclaimed a "Disaster Area" by the Queensland Government—the worst crisis in the history of Western Queensland.

However, over the last few months of the year, there have been signs of improvement, and for the first time in two years, an increase in electricity consumption has occurred, despite the population loss of 20 per cent. within the region. The Board has also received numerous requests for further extensions of supply, and two major rural supply schemes are in the final stages of planning.

Throughout the rural crisis, the people of the "outback" have shown that transmitted electricity supply to their towns and remote properties is a vital amenity for better living, as well as enabling greater efficiency to be achieved in rural and commercial enterprises.

Financial Results

The final result of our operations showed considerable improvement over that forecast at the commencement of the year. The estimated deficit was reduced by 41 per cent. to $32,110, which is considered satisfactory in the light of the adverse conditions existing in the region coupled with the continually rising cost of materials and labour.

The Board has continued with its efforts to improve operational performance; with sterling support from our staff we were able to achieve major cost savings, particularly with generation, through more efficient operation of our power plant.

The Government's action on reconstruction together with other financial measures introduced during the year, have resulted in signs of recovery in the supply region, and although the Board has not received direct financial assistance in any way, it has made every endeavour to maintain the high standard of reliability of supply and service to its consumers.

Sales of Electricity

The receipts from sales of electricity rose by 2·4 per cent. or $19,042 above the previous year, giving a total sales figure of $820,604 for 1971–72. This improvement was due to the connection of new rural consumers in the Blackall area and also to the upward trend in urban sales in the last few months of the year.

Unit sales increased in the domestic, commercial and rural sectors. Excluding the new Blackall rural consumers, the increase in rural unit sales of 7·4 per cent. was the highest increase of all sectors.

With signs of economic recovery appearing in the latter part of the year, the Board took the initiative to encourage an optimistic outlook and reduced a number of tariffs throughout the region. These reductions, together with new concessional tariffs, have been favourably received by our domestic, commercial and rural consumers.

Although liquidity has been a problem throughout the whole of the area, the position relative to outstanding sundry debtors at the 30th June, 1972, has remained satisfactory and totalled only $33,857, representing 4·2 per cent. of the total sales.

Generation

Significant reductions in electricity production costs were made during the year in the Board's central generating stations at Longreach and Barcaldine. Savings have resulted mainly from the strict attention given to both operational efficiencies and planned maintenance routines, which have ensured optimum performance from diesel generating plant and equipment.

The overall cost per kilowatt hour generated has been lowered to 2·03c which is 35 per cent. below the production cost of four years ago. This has been achieved even though costs of labour and materials have almost doubled during that period.

Further improvements were made to plant operations and this has resulted in a 42 per cent. reduction in the kilowatt hour consumption by auxiliary plant in our generating stations—the consumption by auxiliaries being lowered to 1·55 per cent. of the total units generated.

A high degree of reliability has now been achieved in both main stations and the number of interruptions during the year, due to plant breakdowns, has been reduced to three for each of the two stations, as compared with up to 400 per annum recorded at the time of the Board's inception.

In August, 1971, the coal gas producer plant at Longreach was phased out with the installation of an additional 750 kilowatt diesel generating set. This event was an historic occasion as the Longreach gas generation plant was the largest in Australia and had given many years of service. Cost savings will result from this decision to operate all-diesel plant.

The Board's decision to have the remaining smaller generating stations in the supply area placed on a standby basis proved to be a prudent one. On one occasion, in October, 1971, a severe electrical storm struck the Barcaldine-Blackall 22,000 volt transmission line and seven consecutive poles were struck by lightning, necessitating the replacement of five which were completely shattered. The diesel standby plant at Blackall was run up and operated until such times as the transmission line was re-erected utilising emergency portable poles.

Performance targets for generation have been rigidly observed to ensure high operational efficiencies, and in this regard the Board's generating staff can be justifiably proud of their efforts in placing the Longreach and Barcaldine generating stations in the top bracket in Australia in terms of efficiency. In particular, the Barcaldine station was able to achieve a fuel efficiency of 0·507 lbs. per kilowatt hour and generating 3,282 kilowatt hours per gallon of lubricating oil consumed.

Transmission and Distribution

The Board has pursued its objective of making transmitted supply available to meet the needs of property owners throughout the region. The official switch-on of electricity supply to Stage I of the Blackall Shire Scheme took place on 28th July, 1971, thus enabling 34 rural homesteads to receive the benefits of continuous and unrestricted power. The scheme involved over 250 miles of overhead lines at a cost of $240,000.

The completion of this scheme brought the total of overhead lines now in service to 1,660 miles as compared with 549 miles in 1966 when the Board was formed.

During the year, negotiations proceeded with groups of prospective consumers throughout the region. As a result, tenders for the construction of Stage I of the Jericho Shire Rural Supply Scheme are being prepared, which will involve initially 24 properties and 138 miles of high voltage overhead lines at an estimated cost of $140,000.

An 11 mile extension to one of the northern most properties in the region is already under construction, and investigations are proceeding over 250 miles away to the south with Stage I of the Tambo Shire Scheme.

A number of small extensions were also connected, as well as upgrading of the network to improve supply to existing consumers.

The overall transmission and distribution network has continued to be maintained on a fully programmed basis, thus ensuring better utilisation of manpower and materials. Preventive maintenance has also provided greater reliability of supply to consumers.

As a further step to reduce the extent and duration of interruptions during severe lightning activity, a large number of automatic reclosing switches have now been installed at strategic locations in the high voltage network. During the summer storm season, one of these switches recorded 98 operations without any inconvenience to consumers, nor were our standby staff called out. The provision of these switches together with circuit breakers on homestead premises has reduced the previously high cost of storm call-outs to a negligible amount.

The extent of the Board's network and the problems of maintaining and servicing supply can be gauged by the fact that the annual meter reading of 40 properties alone involves over 700 miles of vehicle travel.

The installation of additional radio telephone in our fleet, including the long range four wheel drive vehicles, has helped us overcome many of the problems of communications and remoteness. In addition, the continued employment of an aircraft, piloted by two of our senior staff, has enabled greater utilisation of man hours, as well as giving a significant reduction in costs of line fault location. The Board appreciates that rural consumers are almost solely dependant on a continuous electricity supply, particularly for refrigeration in the long hot summer months, and the utilisation of aircraft for fault finding and service to these consumers has shortened significantly the duration of any interruptions that may occur.

Six Years of Achievement

The Central Western Regional Electricity Board became operational on 1st November, 1966, under powers of State Government legislation.

There are eight Local Authorities in the region of supply of 46,600 square miles and the representatives for those Authorities together with the Commissioner for Electricity Supply comprise the Board.

The Board has successfully co-ordinated the activities of the several generation and distribution authorities previously operating in the area of supply, and has proceeded with an extensive programme of development on a regional basis.

Highlights

1966—Board commenced operations.

1967—Official switch-on of transmitted supply to the town of Isisford.

Construction of Longreach Shire Supply Scheme—Stage II—48 consumers—265 miles of overhead lines at a cost of $229,000.

1968—Official switch-on of transmitted supply to the towns of Blackall, Jericho, Alpha and Tambo.

All towns within the region interconnected by transmission lines totalling 300 miles in length. This project was completed two years ahead of schedule and enabled all appliance restrictions to be lifted in those towns where small Western type power stations previously existed

The accelerated programme of interconnection with transmission lines also provided the means for many rural electrification schemes to be implemented.

Construction of Aramac Shire Supply Scheme—Stage II—30 consumers—180 miles of overhead lines at a cost of $194,000.

1969—Construction of Barcaldine Shire Supply Scheme—Stage III—28 consumers—115 miles of overhead lines at a cost of $124,000.

Board installs two-way radio in long range vehicle fleet to ensure greater reliability of supply to consumers.

Construction of Ilfracombe Shire Supply Scheme—Stage I—21 consumers—90 miles of overhead lines at a cost of $94,000.

Board introduces aircraft, flown by staff, for line fault location to minimise supply interruptions and for general operations in remote areas.

1970—Transmission and distribution networks triple in size since Board's inception.

Automatic reclosing switch gear introduced throughout the network to minimise inconveniences to consumers during severe lightning disturbances.

1971—Construction of Blackall Shire Supply Scheme—Stage I—34 consumers—250 miles of overhead lines at a cost of $240,000

Regional generation based on all-diesel operation following the phasing out of coal gas generating plant in Longreach.

1972—Total expenditure to date from all sources within the supply region totals $7,675,000.

Administration

The year has not been an easy one for Western Queensland, and the staff have accepted the challenge to reorganise our operations in order to meet the needs of economy.

Management objectives were set for the year in order to intensify our efforts in critical areas of operation. In addition, our District Officers again initiated and controlled their own budgets and programmed their works projects All of these measures have encouraged personal involvement by staff in the Board's activities, and have resulted in improved performance and a better understanding of industrial problems to our mutual benefit.

Improvements to the Board's operational performance can be attributed in no small way to staff training programmes. A course run by the Southern Electric Authority for Safety and Supervision was attended by our senior distribution staff. Also, we were again able to arrange with the Department of Labour and Industry for them to provide excellent training courses on occupational safety These activities have supplemented the efforts of our Safety Committees which are active in each of the Board's centres. Other training courses on work Supervisions, Method Study and Human Relations, were attended by staff from various departments.

The Board is also conscious of its responsibility to train apprentices and currently has six electrical and mechanical apprentices employed. Additional support is given by the Board through its direct representation on the Western Queensland Apprenticeship Advisory Committee.

Metrication has become increasingly important in our every day activities and one of our senior engineering staff has been nominated to keep our staff abreast of the conversion details Also, the Board is kept well informed on the latest developments in diesel practice through our representation on a Sub-Committee of the Electricity Supply Association of Australia. Our membership on the Regional Electricity Boards' Tariff Committee and the Marketing and Utilisation Committee enables our staff to maintain an effective liaison with other supply authorities to the ultimate benefit of our consumers.

Our staff members now stand at 57 which is well below the figure at the Board's inception, even though the network is over three times more extensive.

Expenditure for the year from all sources totalled $1,049,800, giving a total expenditure of $7,650,000 since the Board's inception. Our closely knit accounting and administrative staff have again carried out their functions to the complete satisfaction of the Board and Auditors.

During the year our Generation Officer, Mr. John Fordham, transferred to the State Electricity Commission of Queensland, and his efforts in bringing the generating stations up to their high standard deserves mention. His position was taken up by Mr. Peter Hallam, and together with our new Supervising Engineer, Mr. Malcolm Hamilton, we are confident of continued progress and achievement.

The Board's Social Club has continued with its good work in providing a better relationship and understanding between members of the staff.

Service to Consumers

Electricity is a vital amenity to the people of outback Queensland, and the Board recognises that its purpose is to meet this need, and furthermore, to provide a service to ensure reliability and correct utilisation of electricity.

The Board's District Officers with the support of our Advisory Officer, have been active during the year satisfying enquiries from consumers on lighting, heating and power requirements.

The Board's free advisory service is available to both new and existing consumers and our trained staff throughout the region are pleased to discuss the numerous applications and economic benefits of electricity.

Our displays at the regional agricultural shows received favourable comment, and highlighted was the electro-farming Field Day exhibit from the National Field Day held at Orange, New South Wales. This was the first occasion that this exhibit had been seen in Queensland and Western Queensland featured prominently in the display.

Our membership of the newly formed Electrical Development Association of Queensland has continued to be of benefit to the Board in providing a closer liaison with manufacturers, retailers and electrical contractors; also through this liaison, the needs of our consumers can be better served.

CONCLUSIONS AND ACKNOWLEDGEMENTS

The Board continues to receive full support from the eight Shire Councils within the region, and they have again acted as our agents for which we are grateful.

Our engineering consultants, the State Electricity Commission of Queensland have also given us prompt attention with our many projects.

As in previous years, the Board has received excellent coverage from the Regional Press and Radio, and our rapid progress with rural electrification, particularly, can be attributed to their efforts.

Finally, the Board expresses its sincere thanks to the staff for their loyalty and efforts in a year which has been a difficult one and yet achieved the objective.

COMPOSITION OF THE CENTRAL WESTERN REGIONAL ELECTRICITY BOARD

Chairman

Councillor Sir JAMES WALKER, K.B., M.B.E. (Shire of Longreach);

Members

Councillor J. D. BENNETT, O.B.E. (Deputy Chairman)—(Shire of Barcaldine);
Councillor H. F. RICH (Shires of Blackall, Tambo and Jericho);
Councillor H. G. BEHAN, C.M.G., M.B.E. (Shires of Isisford, Aramac and Ilfracombe);
Mr. E. D. MURRAY, M.C., B.E., F.I.E.E., F.I.E.Aust., F.A.I.M. (Commissioner for Electricity Supply).

SENIOR ADMINISTRATIVE AND TECHNICAL STAFF

Manager

R. W. OXENHAM, M.I.E.Aust., A.F.A.I.M.

Supervising Engineer

M. C. HAMILTON, M.I.E.Aust.

Secretary

C. V. WEBSTER, A.A.U.Q., A.A.S.A.

ADDRESS OF BOARD: Ash Street, Barcaldine.

CENTRAL WESTERN REGIONAL ELECTRICITY BOARD

GENERATION STATISTICS
(for year ended 30th June, 1972)

Item	——
Installed capacity (kW)—Thermal	9,554
Hydro	..
Total	9,554
kWh generated—Thermal	14,826,475
Hydro	..
Total	14,826,475
kWh used in works	229,819
kWh sent out	14,596,656
Maximum demand (kW) (generated)	3,710
Annual load factor (%) (generated)	45·8
Coal consumed (tons)	111
Calorific value of coal (BTU/lb.)	13,300
Furnace oil consumed (tons)	..
Calorific value of furnace oil (BTU/lb.)	..
Diesel oil consumed (tons)	3,365
Calorific value of diesel oil (BTU/lb.)	19,700
Overall thermal efficiency (%)	34·0
Overall fuel cost/kWh generated (c.)	·875

LINE MILEAGE
(at 30th June, 1972)

Designed Voltage	Circuit Miles
High Voltage—	
22kV	498·53
11kV	9·00
6·6kV	14·31
2·2kV	1·10
S.W.E.R. 19·1kV and 12·7kV	1,068·65
Sub Total H.V.	1,591·59
Low Voltage	70·91
Total	1,662·50

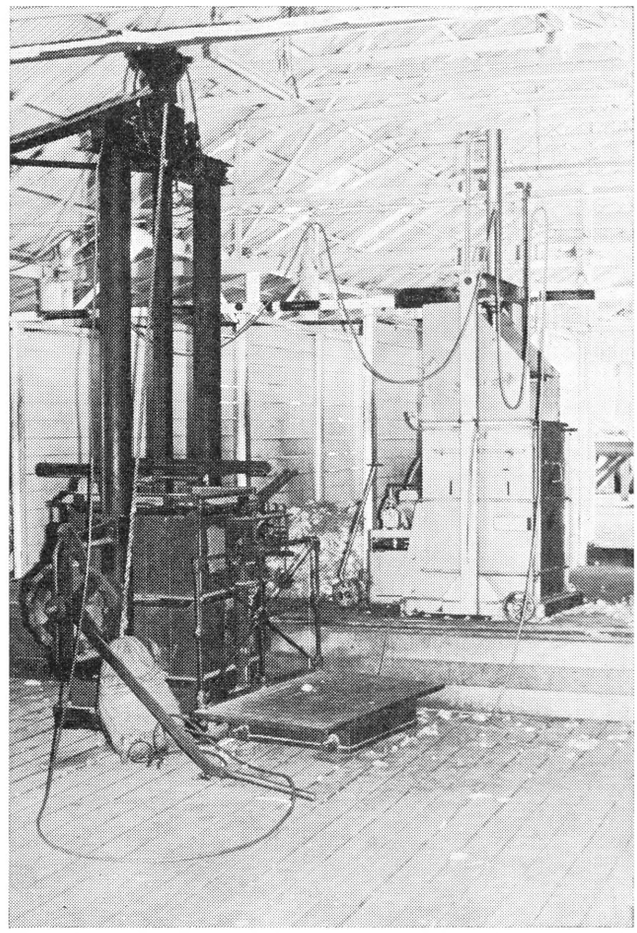
SUBSTATION STEP-DOWN TRANSFORMER CAPACITY
(at 30th June, 1972)

Type	Step-Down Capacity kVA
132kV and above	..
33kV to 110kV	..
22kV and below including S.W.E.R.	11,015
Total	11,015

MISCELLANEOUS STATISTICS
(for year ended 30th June, 1972)

Item	——
Domestic sales (kWh)	4,758,882
Increase over previous year (%)	4·9
Total sales (kWh)	12,638,463
Increase over previous year (%)	2·9
Capital expenditure ($m)	·185
Total Revenue (Per Operating Revenue A/c) ($m)	·839
Total Expenditure (Per Operating Revenue (A/c) ($m)	·957
Area of operations (square miles)	46,565
Population of area (1971 Census)	12,733
Personnel employed	58

Self Supporting Ladder (C.W.R.E.B.)



Old Manual and Modern Electric Wool Press (C.W.R.E.B.)

APPENDIX XIII

THE NORTHERN ELECTRIC AUTHORITY OF QUEENSLAND

ANNUAL REPORT FOR THE YEAR ENDED 30TH JUNE, 1972

SYSTEM OPERATION

GENERAL REVIEW

The Authority continued to supply all the requirements of the Cairns, Townsville and Mackay Regional Electricity Boards, and, notwithstanding the effects of cyclones "Althea" in December, 1971, and "Bronwyn" in January, 1972, total sales for the year were very close to estimates.

The main feature of the year's operation has been the load development which occurred in the Goonyella and Peak Downs coal mining areas, supplied through Moranbah Substation. At the beginning of the year only one dragline excavator was in operation on the coalfields, but the Utah Development Company connected four more to the system progressively through the year. Correspondingly, the Company's energy consumption increased five-fold over the year and was close to that for the whole of the Mackay Region.

As would be expected, the increase in energy sales for the whole system was accompanied by a considerable increase in the demand which reached a peak of 220,000kW on 13th June, 1972. This represents an increase of 13·4 per cent. over 1971. The overall growth rate for energy sales was 16·8 per cent. Corresponding growth rates for the Cairns, Townsville and Mackay Regions were 4·9 per cent., 8·6 per cent. and 13·8 per cent. respectively.

Favourable water supply conditions enabled approximately 59 per cent. of total system requirements to be produced in the hydro stations. Greater hydro production might have been achieved had not limitations been imposed by the minimum level of thermal generation necessary at Collinsville to cope with the fluctuating loads of the draglines on the coalfields. The Collinsville thermal station produced 40 per cent. of total system requirements and the balance came from the Townsville Power Station and interconnected sugar mills. The most significant problems which arose in system operation during the year were attributable to cyclone "Althea" which struck Townsville on 24th December, 1971. All of the 66,000 volt lines in the Townsville city area and one 132,000 volt circuit between Townsville and Clare became unserviceable due to damage caused by the cyclone. Despite the damage, the Authority was able to maintain supply continuously at all bulk supply points except Stuart, which suffered loss of supply for 29 hours; however, supply was restored to this point before the dependent distribution system was repaired. The area based on the Townsville Power Station became isolated from the main system, but supply was maintained from the local generating plant.

Industrial action at the Collinsville Power Station also caused some disruption to supply on one occasion, necessitating some load shedding for a period of two hours. Subsequent voluntary load reduction by consumers fortunately obviated any need for further enforced outages.

Progressive deterioration in the quality of coal being supplied to the Collinsville Power Station has been a matter of great concern during the year. In addition to the higher fuel costs, which must eventually be reflected in higher charges for electricity, there has been some resultant difficulty in maintaining efficiency and maximum output from plant. The quality of coal available at Collinsville is assuming greater relevance in the Authority's plans for future development.

In September, 1971, control room staff were transferred to the new System Control Centre adjoining the Head Office, and by the end of the year, most substations were under remote control from this Centre. With this improved control and greater diversification of generation, interruptions of supply to consumers have generally been brief.

COLLINSVILLE POWER STATION

The operating pattern for the Collinsville Power Station was dominated throughout the year by the need to run sufficient plant to cover the load peculiarities of the large dragline excavators at the Goonyella and Peak Downs mines. This requirement derives from the fact that the steam plant has faster response than hydro-electric plant and is better able to cope with rapidly changing demands. This mode of operation, coupled with the desire to make maximum use of the hydro resources, called for generation by the Collinsville units at approximately half capacity for long periods. As this is well below the level for optimum operation, a slight drop in overall station efficiency resulted.

Serious malfunction of the pulveriser mill drives on all units led to extensive modification of the plant. The work has involved reversing the direction of rotation, re-machining the girth ring gears and re-designing the girth ring lubrication system.

The drag link coal feeders have proved unsatisfactory in service and are being replaced by belt feeders designed by the Authority's staff and manufactured at the Townsville Power Station workshop. Three of the four boilers at Collinsville were converted in this manner.

During the year, equipment was commissioned for remotely controlling the Bowen River pumping station which supplies water to the town of Collinsville as well as to the power station.

TOWNSVILLE POWER STATION

The Townsville Power Station was brought into service twice during the year; the first occasion being for 13½ hours as a result of an industrial stoppage at Collinsville and the second for a period of 5½ days during cyclone "Althea".

On the latter occasion, bulk supply was maintained continuously at the terminals throughout the period of separation from the main system. The station continued to run for some time thereafter until transmission arrangements were able to be regarded as firm. The extended period of operation during the cyclone emergency severely taxed the available staff. Long hours were worked in a difficult operating situation since the east wall of the station had been damaged, allowing torrential rain to flood the overhead bunker and part of the operating plant.

For the last six months of the year, repair work has continued on the power station building, coal elevators and electrical equipment, all of which were damaged during the cyclone.

KAREEYA POWER STATION

Following the favourable wet season of 1971, good rains also occurred over the Koombooloomba Dam catchment in 1972. Once again the Dam filled to capacity, and commenced spilling over the fully inflated Fabridam on 18th March. Spilling did not cease until 26th June. Limitations on station operation were therefore fixed by the capacity of the system to absorb its output rather than the availability of water.

Plant continued to operate satisfactorily and was available to meet all demands.

Corroded high pressure control piping was replaced on No. 3 set, thereby completing the replacement of all high pressure control piping in the station.

The access roads between Tully and Cardstone were still causing concern, particularly since both roads deteriorated badly during the prolonged wet weather. Negotiations among interested parties on the requirements for future maintenance and improvements, however, gave hope of early clarification of the Authority's responsibility in this regard.

BARRON GORGE POWER STATION

Once again, a plentiful supply of water ensured high output from the station which was operated to the maximum capacity of the system to absorb its output. Excess water spilled over the weir from 8th January to 18th January, 1972, and again from 17th February to 4th June, 1972. The plant performed reliably and was available as required.

A closed circuit cooling system was designed and fitted to No. 1 set to eliminate blockages in the turbine bearing cooling water passages, such as had occurred previously through use of silt laden river water for cooling purposes. The new cooling system performed very satisfactorily and resulted in higher availability of plant, particularly during periods of high flow in the river.

TRANSMISSION SYSTEM

Most of the abnormal operating conditions which occurred on the 132,000 volt transmission system were caused by lightning. In total, there were 39 faults on the overhead lines due to this cause, but only 19 of these affected supply to consumers, and then only briefly.

Cane fires were responsible for ten transmission line faults, of which five involved both circuits of double circuit lines. Consumers lost supply in only one instance.

Vandals damaged insulators by rifle fire on two occasions, but neither incident caused any disruption of bulk supplies. In one case, a high voltage conductor fell to the ground close to the point from which the rifle had been fired.

Two substation equipment failures occurred due to the ingress of moisture into high voltage equipment, involving a 33,000 volt circuit breaker at Mackay on one occasion, and a 132,000 volt current transformer at Tully on the other.

The transmission system in the Townsville area stood up well to a severe testing by cyclone "Althea". Damage to the 132,000 volt system was limited to one broken span of overhead earthwire which, unfortunately, fell across the main conductors. The 66,000 volt wood pole lines in the Townsville area suffered more severely, a number of poles being blown over in the water-logged ground. Erosion of the river bank by the flood-swollen Ross River endangered one of the steel towers used for the crossing span in the Garbutt-Stuart 66,000 volt line, and relocation of the tower was necessary. The relative freedom of the system from serious cyclone damage allowed the Authority's staff to assist the Townsville Regional Electricity Board in the restoration of its heavily damaged distribution system.

COMMUNICATIONS

Installation of supervisory control equipment progressed to a stage where on 2nd September, 1971 there were sufficient facilities available to permit system operational control to be transferred to the new System Control Centre in Townsville. Despite technical problems encountered in placing the new equipment into service, seven unattended remote bulk supply substations were under the supervision and control of the System Control Centre by the end of the year. Work continued on the extension of the system to incorporate the remaining bulk supply substations.

The mobile radio system was developed further with repeater stations having been placed into service on Mt. Blackwood near Mackay, on Mt. Stuart near Townsville, at Clare Substation on the Burdekin River, and at a site midway between Moranbah Substation and the proposed new Dysart Substation. The major part of all transmission line routes south from Ingham thus came into the area covered by the mobile radio system. Planning for expansion into the northern areas was well advanced.

Assistance was given to the Papua and New Guinea Electricity Commission in the design of an integrated communications and control system for the Territory's power system embracing the highlands and coastal regions near Lae and Madang.

TRANSPORT

Twenty-five motor vehicles reached the end of their economic life and were replaced.

Additions to the fleet were two 40-passenger buses for the daily transport of employees to and from Collinsville Power Station, and one vehicle to cater for the increased activities at that power station.

There has been a significant saving in this, the first full year that the Authority has carried the greater part of its own motor vehicle damage risk.

FINANCIAL

RESULTS FOR YEAR

Unit sales to Boards increased by 8·2 per cent. to 814·25 million, just above the average annual growth in sales. Receipts from these sales totalled $10,222,776; this was 0·47 per cent. below budget.

Sales to the Utah Development Company for coal mining purposes totalled 76·29 million units, worth $1,407,744. Five draglines are now in operation (out of a total of eight to be installed), and sales will increase substantially next year. Chargeable demands are lower than originally anticipated, and this has affected revenue significantly.

Units generated from the Authority's hydro stations were 59·3 per cent. of the total units produced, compared with 60·5 per cent. last year (and with a record 94·8 per cent. in 1967–68). Hydro units form a lessening proportion of the total production.

The Authority's tariffs for bulk supply to the Boards were increased by an average of 5 per cent., with effect from 1st December, 1971. Two-part rates were also introduced on that date for sales by Boards to large industrial consumers. This has resulted in a loss of revenue for the Authority.

Despite the additional costs of wages and fuel this year, there was a cash surplus of $135,516. This has reduced the accumulated deficit at the end of the year to $750,532.

Although the Authority has accepted as desirable policy that interest on loans raised for major power station construction should not be capitalised, it is not yet in a financial position to implement this policy. Accordingly, a further $74,315 was capitalised this year.

RESERVES

The Reserve against Breakdowns and Extraordinary Maintenance now stands at $220,000. Although a much greater reserve should be held because of the Authority's diverse assets and risks, only a gradual increase can be foreseen at this stage.

The Authority should also hold a substantial Stabilization Reserve if it is to guarantee stability of bulk supply tariffs in periods of drought and extraordinary conditions. At present, the Authority has no such funds; and it is not likely to be in a position to create such a reserve in the near future.

DEPRECIATION AND LOAN REDEMPTION

Depreciation of $3,546,547 was assessed for the year. This was based on the gross capital value of assets, including Collinsville Power Station, and also including Government subsidy paid on the Tully Falls Hydro-Electric project.

Loan redemption payments in 1971–72, however, were only $1,592,991. Very little redemption is paid in the early years of Treasury loan indebtedness on hydro schemes; in addition, sinking fund payments on new loans for major projects are much lower than the depreciation rates.

The difference between depreciation assessed and loan redemption paid is the main reason leading to a loss for the year of $1,494,253 compared with a cash surplus of $135,516.

The State Electricity Commission has accepted that, where practicable, tariffs should be based on the revenue account. This is the practice of most supply authorities in Australia. The cash budget must, however, continue to be the basis for tariff determination for some time, as the large difference between depreciation and loan redemption will preclude any early attempt by the Authority to base its bulk supply charges to the Boards on the revenue account.

OPERATING COSTS

The fixed charges of interest and depreciation continue to be significant proportions of the Authority's operating costs, as shown by the following table:—

	$	Per cent.	Last Year Per cent.
Generation	3,642,921	27·58	24·35
Bulk Purchases	18,096	0·20	0·14
Transmission	592,066	4·49	4·12
Management and Miscellaneous	354,048	2·69	2·73
Loan Interest, &c.	5,024,224	38·13	37·71
Depreciation	3,546,547	26·91	30·95
	13,177,902	100·00	100·00

The ratio of capital charges to receipts from sales of electricity on a cash basis was 58·1 per cent. (compared with 64·1 per cent. last year). This shows the effect of the large increase in sales for coal mining purposes.

The cost per unit produced and purchased (on a cash basis) was 1·136 cents—an increase of 0·7 per cent. on last year's cost. The revenue per unit sold was 1·306 cents, or 3·1 per cent. above cost.

CAPITAL EXPENDITURE

Capital expenditure for the year amounted to $3,611,754. The Authority under-spent its loan allocation because of delays in deliveries of plant and lateness of claims.

This expenditure was spread over the following works:—

	$
Collinsville Power Station (including Capitalisation of Interest)	2,572,534
Other Generating Stations	123,962
Transmission Lines and Substations	503,166
Supply to large mining loads	254,116
Miscellaneous Works	157,976
	$3,611,754

It is now the declared policy of the electricity supply industry in Queensland to finance a substantial portion of capital works from revenue sources. The Authority's forward budgeting does not indicate any possibility of it doing so for some years yet.

DEVELOPMENTAL PROJECTS

COLLINSVILLE POWER STATION

A further notable step was taken during the year with the commencement of site construction works on the third stage of development of the Collinsville Power Station and, by the end of the year, some 36 contracts had been awarded for a total current value of $11 million. Progress has been such that, if continued, the scheduled date of March 1974 should be met for the regular commercial service of the No. 5 unit of 60,000kW capacity.

Santalucia Earthmoving Contractors have carried out the initial site works to provide access roads and drainage, levelling of the site and some bulk excavations for foundations. The Hornibrook Group have proceeded satisfactorily on the civil engineering works contract, having installed the 54-inch circulating water piping manufactured by Steel Mains Pty. Ltd. and provided foundations to permit the boiler erection to proceed to schedule.

The boiler contractor, International Combustion Australia Limited, completed 60 feet of the 300 feet reinforced concrete chimney stack and erected some 1,000 tons of boiler supporting structural steelwork.

Cyclone K-M Products Pty. Ltd. completed fabrication of the turbine house and auxiliary bay structural steelwork and commenced its erection. This work should be sufficiently advanced to enable F. A. Pidgeon and Son Pty. Ltd. to start the building works contract as scheduled by August 1972.

By the end of the year, the engineering design works were well advanced and contracts had been awarded for all major plant and equipment. The civil engineering design service, provided by Macdonald, Wagner and Priddle, Consulting Engineers, to assist the Authority's staff in meeting the additional work loading, was almost complete.

Manufacture in works had progressed to schedule on various contracts including the electrostatic precipitator by James Howden and Co. Australia Pty. Ltd., the cooling tower by Email Limited, the ash handling plant by John Thompson (Aust.) Pty. Ltd., the instrument and controls by Siemens Industries Limited, and the transformers by The General Electric Company of Australia Limited.

Reyrolle Parsons of Australia Limited experienced delays in their programme for the provision of the No. 5 turbo-generator mainly through industrial difficulties experienced in the United Kingdom. Special attention will continue to be given to this aspect of the work to ensure adherence to the overall programme.

Housing in Collinsville has been progressively provided for the Authority's staff by the Queensland Housing Commission, and a total of 97 houses had been completed by the end of the year. Work was in progress on a further four houses to meet present requirements, while a further 18 houses have been planned for the next two years to accommodate the increased operating and maintenance staff required for No. 5 unit.

AERIAL ROPEWAY

A contract has been placed with P.H.B. Engineering Pty. Ltd. for the supply of equipment for an aerial ropeway to connect the headworks at the top of the Tully Gorge with the Kareeya Power Station. Although most of the equipment will be manufactured in Germany, erection will be carried out by the Authority's own labour force under specialist supervision. The completion of the ropeway in mid-1973 will considerably improve the access for operational and maintenance purposes.

PROSERPINE

Substantial progress was made throughout the year on the design and construction of Proserpine Substation, scheduled for commissioning in March 1973. This substation will provide another point of bulk supply to the Mackay Regional Electricity Board, and cater for the growing load in the Proserpine and Mackay areas.

All necessary contracts for the supply of major electrical plant were awarded, and some of these items had been delivered. Earthworks, drainage and fencing were completed, structural steel was delivered, and the switchyard foundations and control building were nearing completion. Electrical erection is scheduled to commence in August 1972.

GARBUTT

A contract was awarded for the supply and delivery of a second 40 MVA 132,000/66,000 volt transformer for Garbutt Substation, and all necessary detailed design and civil engineering site works were completed in preparation for its installation in September 1972. The provision of this transformer will increase the firm capacity at Garbutt as required by the growing electrical demand of the Townsville Regional Electricity Board, and will release the existing 20 MVA 132,000/66,000 volt transformer for use at the Proserpine Substation.

Work was well advanced in the provision of an additional 66,000 volt bay to connect the Townsville Regional Electricity Board's Cranbrook feeder which is due for commissioning in March 1973.

CLARE

Design work was completed, all materials ordered, and depot construction of control panels completed for the provision of an additional 66,000 volt feeder bay for increased supply to the Townsville Regional Electricity Board at Clare Substation. The new feeder bay, due for commissioning in October 1972, will provide an exclusive circuit breaker for the Board's Charters Towers 66,000 volt feeder presently connected into its Millaroo feeder.

OTHER SUBSTATION WORKS

The installation of equipment at bulk supply points to permit supervision and control from the newly established System Control Centre was completed for Kareeya, Barron Gorge and Turkinje.

Permanent metering was installed at Moranbah Substation to cater for the combined Goonyella-Peak Downs operation. Equipment was ordered and design completed for installation at Moranbah in October 1972 of a 132,000 volt bus-section circuit breaker to give improved reliability of supply and flexibility of operation.

Preliminary substation layouts were prepared in order to determine our land requirements for a future substation to be located in the Kamerunga area for further bulk supply to the Cairns Regional Electricity Board.

Low voltage supplies at Ingham Substation were relocated, rationalised and mounted on new panels above flood level.

Station supply supervision relays were installed at Garbutt, Clare and Mackay, revenue metering modifications were completed at Stuart and Garbutt, and other minor substation improvements and modifications have continued to keep pace with operational and system requirements.

TRANSMISSION LINES

Moranbah-Dysart

The first half of the year saw the completion of survey and clearing, and the design and field location of all tower positions on the 47 miles of double circuit 132,000 volt transmission line from Moranbah to supply the proposed Saraji Mine of the Utah Development Company. On completion of the clearing, work ceased pending further advice from the Company on the future of the project. In June, however, the Company advised that the Saraji Project would proceed.

Mackay-Moranbah

In the event of further development in the Bowen Coal Basin, a transmission line route between Mackay and Moranbah could become an urgent requirement. Action has therefore been taken to secure easements in the critical area between Mackay and Eton. More than 80 separate registrations are required in a transmission line route length of only twelve miles through this closely settled sugar cane growing area. Field survey commenced in February and was in progress at the end of the year.

Collinsville-Townsville

Work continued on the survey and clearing of 105 miles of transmission line route direct from Collinsville to the proposed Ross Substation on the outskirts of Townsville. By the end of the year, the survey and full width clearing was complete for some 80 per cent. of the line route. This transmission line will be required to meet the growing load in the Townsville area and will initially be operated at 132,000 volts. The line will, however, be constructed for ultimate service at 275,000 volts—the first of its type planned for service in North Queensland. Metric units have been adopted for all survey and design work associated with this transmission line.

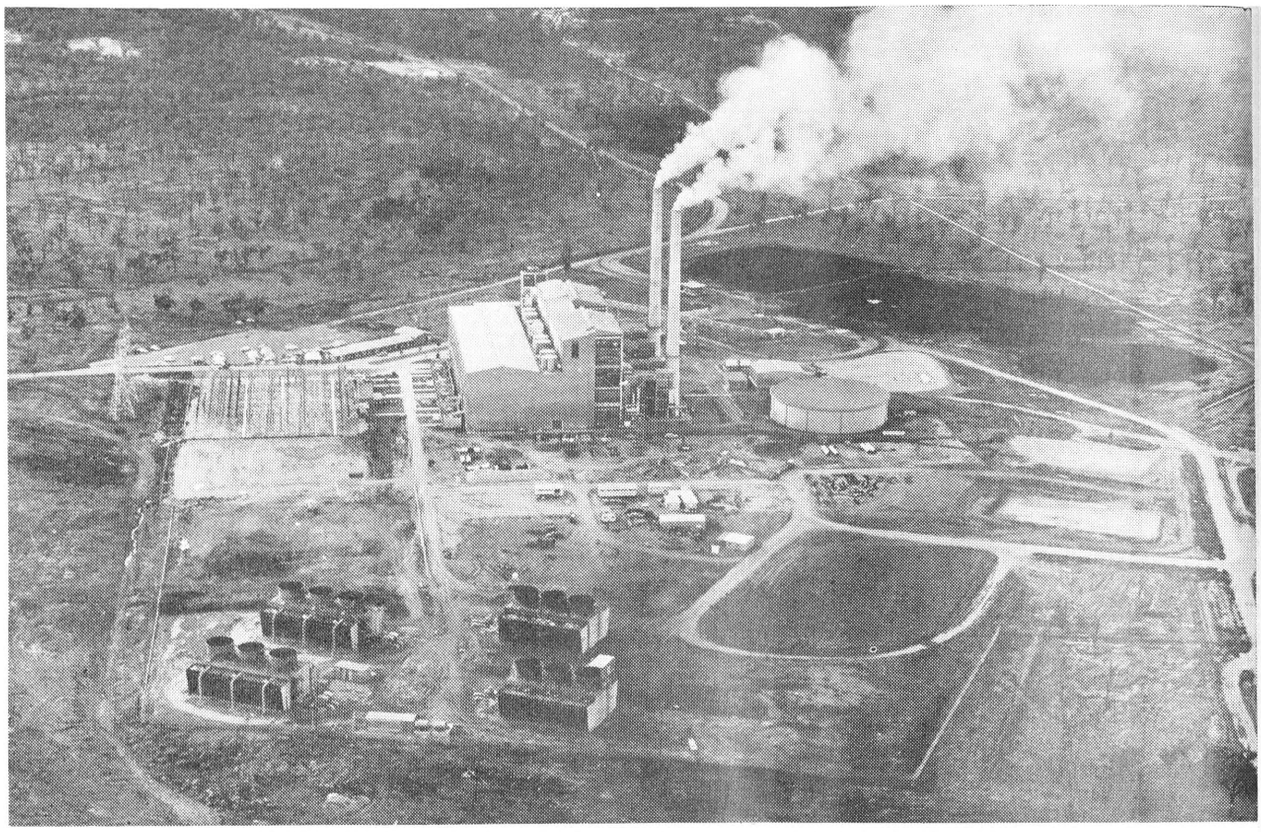
Garbutt-Clare

Construction of the Townsville City Council's Ross Dam will result in the inundation of approximately ten miles of the existing Garbutt-Clare 132,000 volt transmission line. Clearing of the resulting deviation was completed in the early months of the year. All necessary materials were ordered and arrangements were completed for the carrying out of this transmission line relocation by the Authority's own labour force.

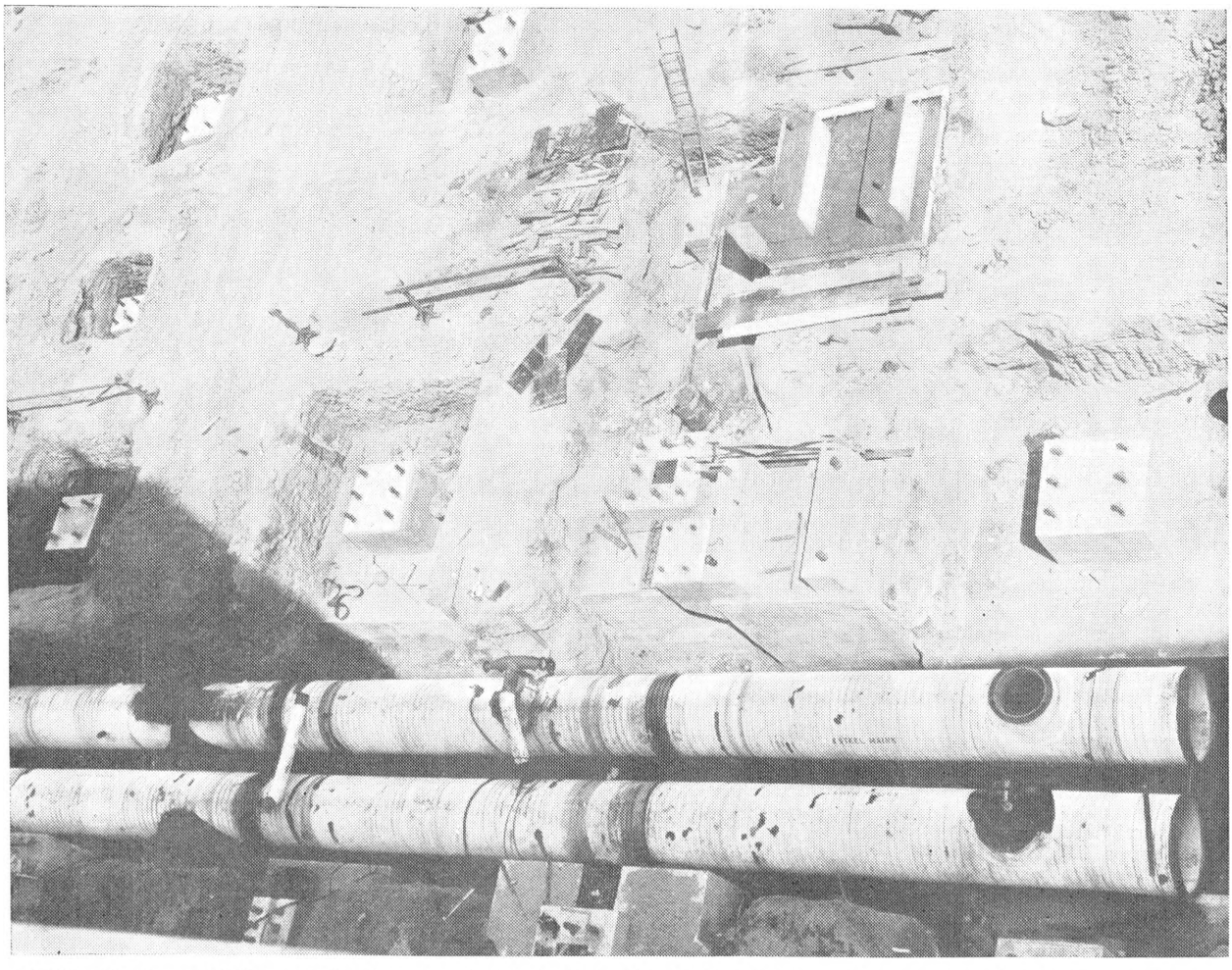
FORWARD PLANNING

To ensure that timely plans will be available as the basis for major developmental projects, the careful study of prospective load growth and various means of satisfying the expected future demands on the system has continued. Consultation was effected with the State Electricity Commission of Queensland on generation requirements, and with the Regional Electricity Boards on supply requirements, through regular meetings of the respective Planning Committees.

The special requirements of supply to large mining projects in the Bowen Coal Basin continued to exert a major influence on the Authority's planning. Feasibility studies on supply to several such ventures in the area were undertaken.



Collinsville Power Station showing also preliminary site works for Stage 3.



Collinsville Power Station—Aerial view from 70 ft. level showing C.W. pipelines, mill and column foundations completed.

Of these, only the Utah Development Company's Dysart Project became firm. Plans for the corresponding expansion of the system were at an advanced stage.

For generation development, the Authority was only committed to installation of one 60,000kW steam unit in the Collinsville Station, the target date for commissioning being early 1974. Beyond that, tentative plans provide for the installation of two 15,000kW gas turbines in the period 1975 to 1977, followed by a second 60,000kW steam unit at Collinsville in 1977 or 1978. During the year, two of the Authority's Engineers inspected gas turbine installations in the U.S.A. and conferred with manufacturers and operators in order to determine the most appropriate design parameters.

Plans for the extension of the main transmission system include the construction within the next two years of 47 miles of double circuit 132,000 volt transmission line between Moranbah and Dysart, and a corresponding 132/66/22kV substation at Dysart. Although the prime purpose of this project will be to satisfy the special needs of the new mining development at Dysart, bulk supply will be available also to the Capricornia Regional Electricity Board for normal power reticulation in the vicinity.

Other transmission projects which have been planned relate to augmentation of transformer capacity at Kareeya and expansion of the 66,000 volt substation at Ingham. This latter development will assist the Townsville Regional Electricity Board to supply the Greenvale Nickel Mining Project.

All computing related to Planning has been adapted to operate from the Authority's Head Office remote terminal connected to the PDP-10 time-sharing system at the James Cook University of North Queensland. About 16 programmes for the solution of technical and economic problems were available for use, and a major project which will allow analysis of all bulk supply point and system load records direct from magnetic tape via the remote terminal was almost complete.

ADMINISTRATION

COMPOSITION OF THE AUTHORITY

The past year has seen major changes in the composition of the Authority and in its organizational arrangements.

The Commissioner for Electricity Supply, Mr. H. N. Smith, who had directed the development of the electricity supply industry in Queensland since October 1950, retired from office on 21st January, 1972. He was succeeded on 13th March, 1972 by the Authority's first Chairman, Mr. E. D. Murray, who, in this latter capacity, continued as a Member of the Authority. The Authority is appreciative of the outstanding contribution of both men since the Authority's inception.

As successor to Mr. E. D. Murray, the Governor in Council appointed Mr. F. A. McKay to be Chairman, Chief Executive Member and Chief Executive Officer. Mr. McKay, at the time of his appointment, was the Authority's Chief Engineer, having served in that position since 1964.

The sudden and untimely death of Mr. D. H. Stark on 10th February, 1972 was deeply felt by all Members of the Authority and by those on its staff with whom he had been associated. Mr. Stark was an inaugural Member of the Authority and his wise counsel over the years had always been valued.

On 4th May, 1972, the Governor in Council appointed Mr. J. D. Tait as a Member of the Authority to fill the vacancy.

Consequent upon the appointment of Mr. McKay as Chairman, the Authority's organizational arrangements were modified. Mr. A. H. Hill, formerly Operations Engineer, was appointed Operations Manager, and Mr. S. G. Lister, formerly Engineer for Generation Design and Construction, was appointed Development Manager.

STAFF RECRUITMENT

The Authority's total work force averaged 515 in number for the year with a peak of 539 and a low of 508. There has in fact been little variation in the total number of employees over the past five years.

Eight new apprentices were employed and one drafting and one engineering cadetship awarded, bringing the totals under training at the end of the year in each category to 31, 5 and 11 respectively.

STAFF TRAINING

In addition to internal training courses for operating staff at the power stations, about one-fifth of the Authority's employees undertook some form of staff training or further education by external study. Use was made of courses provided by organizations such as the Australian Institute of Management, the James Cook University of North Queensland, the University of Melbourne, the Institutes of Technology and the Southern Electric Authority.

The Authority continued to encourage trade and clerical employees to improve their educational qualifications and several were successful in advancing to higher positions.

Three of the Authority's engineering cadets were continuing their studies for higher University degrees: One at Townsville, one at Brisbane and one at Newcastle.

The arrangement with the Townsville Regional Electricity Board for the joint training of apprentices has been maintained. The joint apprentice school has played a major part in providing training in the basic manual skills for all apprentices and cadet draftsmen.

STAFF AMENITIES

The Authority has always been aware of the need to provide a satisfactory working environment with adequate staff amenities.

A new canteen at Cardstone, with facilities for indoor games, TV lounge and other recreational pursuits, was opened by the Deputy Chairman, Cr. Holdcroft, in November, 1971. It has become a focal point for many activities in this village which serves the Kareeya Power Station.

The Social Club has continued to play an important part in the corporate life of the Authority, and the voluntary work of its office bearers in this regard is duly acknowledged.

TOURISM

Several years ago the Authority embarked on a programme of restoring and improving the environs of its major installations. As a result, these places have not only become attractive places in which to work—they have also been included by tourists in their itineraries. The boating, camping, swimming and picnic facilities, provided both at Koombooloomba Dam and near Cardstone village, have become widely used by visitors. Barron Gorge Power Station, set in the scenic gorge of the Barron River and readily accessible from the major tourist centre of Cairns, last year gave conducted tours to over 9,600 visitors.

Plans are in hand to develop similar facilities at other installations.

INDUSTRIAL RELATIONS

The good relations already established with trade unions and staff and professional associations have been maintained. Communications with representatives of these organizations were such that grievances have been discussed at an early stage in an endeavour to resolve the matters at issue. The only industrial stoppage during the year occurred at Collinsville Power Station.

Substantial salary and wage increases were granted during the year. The most significant, which resulted in individual increases ranging up to 29 per cent. was the result of an investigation by the Industrial Commission into rates being paid to operating staff in similar positions in other States.

ACCIDENT PREVENTION

Great importance is placed by the Authority on safe working conditions and practices throughout the undertaking. Regular training and counselling is given by first-line supervisors under the guidance of the Safety Officer to help achieve accident-free working. Nine groups of employees received plaques awarded by the National Safety Council of Australia for having worked 12 months without an accident, three groups receiving their third consecutive award and two their second.

First Aid training has continued to form an important part of the training programme, especially for tradesmen and apprentices.

SUPERANNUATION SCHEME

Approximately 70 per cent. of the Authority's employees were members of the Superannuation Scheme at the end of the year. The Scheme is now operated on a managed fund basis, the capital sum payable on retirement being a multiple of the employee's final average salary, thereby having the effect of countering inflation by relating the final payout to the then current salary. During the year, the Authority's contributions were increased slightly, after the periodic actuarial review. It was also decided to change the method of investment to an E.F.G. basis, which should increase the earning rate within the fund.

INDUSTRIAL ACTIVITIES

The Authority remained active in the Committees of the Electricity Supply Association of Australia and in industry Committees in Queensland. Considerable benefits have been gained from this close contact with other electric authorities.

ACKNOWLEDGEMENTS

The State Electricity Commission of Queensland has continued to provide guidance to the Authority's staff on many technical and financial aspects, frequently beyond the formal statutory provisions under which the Commission and the Authority operate. The three Regional Electricity Boards in North Queensland have worked closely with the Authority in many areas of common interest, particularly in the provision of services to the Authority in remote centres.

To them and to the many other organizations and individuals who have contributed to the achievement of its goals, the Authority records its deep appreciation.

The efforts of all employees are worthy of special mention for without them the provision of an essential service to the people of North Queensland would not have been possible. Their loyalty and devotion to duty during periods of crisis, such as occurred when cyclones "Althea" and "Bronwyn" struck North Queensland, deserve the highest praise.

COMPOSITION OF THE NORTHERN ELECTRIC AUTHORITY OF QUEENSLAND

Chairman

Chief Executive Member, and Chief Executive Officer—Mr. F. A. McKAY, B.E., B.A., F.I.E.Aust.

Members

Councillor C. St.L. HOLDCROFT, M.B.E. (Deputy Chairman)—(Cairns Regional Electricity Board);
Councillor W. O. GARBUTT, O.B.E. (Townsville Regional Electricity Board);
Councillor T. G. NEWBERY, M.L.A., F.A.I.M. (Mackay Regional Electricity Board);
Mr. J. McG. McINTYRE, B.E. (N.Z.), M.I.C.E., F.I.E.Aust.
Mr. J. D. TAIT, B.Com., B.Econ., A.A.U.Q., A.C.A.
Mr. E. D. MURRAY, M.C., B.E., F.I.E.E., F.I.E.Aust., F.A.I.M. (Commissioner for Electricity Supply).

SENIOR ADMINISTRATIVE AND TECHNICAL STAFF

Operation Manager

A. H. HILL, B.E., F.I.E.Aust.

Development Manager

S. G. LISTER, Dip.Mech./Elect.Eng., M.I.E.Aust., M.I.E.E.(C. Eng.), F.A.I.M.

Secretary

J. BORDUJENKO, B.Com., A.A.S.A.(Senior), A.C.I.S.

ADDRESS OF AUTHORITY: 23-38 Dalrymple Road, Garbutt.

NORTHERN ELECTRIC AUTHORITY OF QUEENSLAND

GENERATION STATISTICS
(for year ended 30th June, 1972)

Item	——
Installed capacity (kW)—Thermal	157,500
Hydro	132,000
Total	289,500
kWh generated—Thermal	400,183,500
Hydro	592,824,000
Total*	993,007,500
kWh used in works	39,049,310
kWh sent out	953,958,190
Maximum demand (kW) (generated)	220,000
Annual load factor (%) (generated)	51·4
Coal consumed (tons)	189,063
Calorific value of coal (BTU/lb.)	11,185
Furnace oil consumed (tons)	1,648
Calorific value of furnace oil (BTU/lb.)	19,500
Diesel oil consumed (tons)	..
Calorific value of diesel oil (BTU/lb.)	..
Overall thermal efficiency (%)	28·8
Overall fuel cost/kWh generated (c.)	·353

* In addition 8,685,800 kWh were purchased from Sugar Mills.

LINE MILEAGE
(at 30th June, 1972)

Designed Voltage	Circuit Miles
High Voltage—	
132kV	1,242·10
66kV	19·90
22kV	15·50
Total	1,277·50

SUBSTATION STEP-DOWN TRANSFORMER CAPACITY
(at 30th June, 1972)

Type	Step-Down Capacity kVA
132kV and above	627,000
33kV to 110kV	106,000
22kV and below including S.W.E.R.	1,000
Total	734,000

MISCELLANEOUS STATISTICS
(for year ended 30th June, 1972)

Item	——
Total sales (kWh)*	890,546,000
Increase over previous year (%)	16·8
Capital expenditure ($m)	3·612
Total Revenue (Per Operating Revenue A/c) ($m)	11·684
Total Expenditure (Per Operating Revenue A/c) ($m)	13·178
Personnel employed	516

* Consists of sales to three regional electricity boards and one major industrial consumer.

APPENDIX XIV

COMPARATIVE STATISTICS OF ELECTRICITY SUPPLY INDUSTRY IN QUEENSLAND

Item	Financial Year Ended				Per cent. Increase During 1970–71
	31–12–38	30–6–53	30–6–70	30–6–71	
Population of Queensland	1,005,523	1,291,410	1,789,780	1,823,362	1·3
Population Supplied	680,000	960,000	1,753,984	1,786,895	1·3
Percentage of Population Supplied	67·6	74·3	98·0*	98·0*	..
Installed Generating Capacity—(kW)—					
Hydro	2,600	3,960	132,016	132,016	..
Steam	112,000	259,158	1,461,000	1,488,500	1·9
Gas Turbine	..	..	115,000	115,000	..
Internal Combustion	21,400	33,586	36,100	35,571	−1·5
Total	136,000	296,704	1,744,116	1,771,087	1·5
Aggregated Maximum Demand of Power Stations—(kW)	69,000	267,000	1,130,310	1,334,746	18·1
Fuel Consumed—(Tons)—					
Black Coal	180,105	919,495	2,404,887	2,578,428	7·2
Oil	4,779	22,515	31,409	36,070	14·8
Natural Gas—(cu. ft.)	..	..	125,090,000	140,080,000	12·0
Other	1,565	1,669	..	..	..
Supply Lines—(Miles)—					
High Tension	N/A	5,450	34,079	36,844	8·1
Low tension	N/A	5,582	12,337	12,573	1·9
Total	3,900	11,032	46,416	49,417	6·5
Production—(kWh)—					
Generated	139,621,000	1,167,638,000	5,326,640,094	5,789,260,000	8·7
Purchased from outside sources	89,468,000	6,880,000	68,186,121	85,283,018	25·1
Generated and purchased	229,089,000	1,174,518,000	5,394,826,215	5,874,543,018	8·9
Used in works	N/A	61,071,000	335,165,269	390,306,638	16·5
Available to net-works	N/A	1,113,447,000	5,059,660,946	5,484,236,380	8·4
Lost or unaccounted for	N/A	155,175,000	561,101,455	589,348,804	5·0
Sold to Retail consumers	192,239,000	958,272,000	4,498,559,491	4,894,887,576	8·8
Retail Consumption—(kWh)—					
Domestic	N/A	443,499,000	1,856,549,947	2,037,565,062	9·8
Commercial, Industrial	N/A	452,368,000	2,536,463,433	2,750,088,718	8·4
Traction	N/A	38,235,000	..	..	..
Public lighting	N/A	12,229,000	34,706,579	37,413,655	7·8
Supply to New South Wales	N/A	11,941,000	70,839,532	69,820,141	−1·4
Total	192,239,000	958,272,000	4,498,559,491	4,894,887,576	8·8
Retail Consumers—					
Domestic	N/A	249,975	471,211	484,968	2·9
Commercial, Industrial	N/A	39,890	93,706	96,129	2·6
Traction	1	1	..	..	..
Public lighting	N/A	111	130	129	−0·8
Supply to New South Wales	1	1	1	1	..
Total	149,191	289,978	565,048	581,227	2·9
Capital Requirements—($)—					
External liabilities	N/A	88,924,000	458,517,210	486,576,889	6·1
Original cost of assets in service	13,766,000	104,992,000	632,187,827	686,364,264	8·6
Progressive capital expenditure	N/A	108,430,000	698,222,984	752,340,477	7·8
Operating Finances—($)—					
Production cost	2,596,000	19,320,000	98,399,716	109,877,613	11·7
Normal revenue	3,150,000	21,260,000	101,690,125	110,760,199	8·9
Annual Consumption—(kWh)—					
Per capita (using mean population)	192	753	2,520	2,689	6·7
Per consumer (overall)	1,289	3,305	7,961	8,422	5·8
Per domestic consumer	N/A	1,774	3,940	4,201	6·6
Average Cost—(c.)—					
Per unit generated/purchased	1·13	1·64	1·82	1·87	2·7
Per unit sold	1·35	2·02	2·19	2·24	2·3
Consumer Price Index	N/A	100·0	156·2	164·3	5·2
Average Normal Revenue—					
per unit sold (c.)	1·64	2·22	2·26	2·26	..
Per consumer (overall) ($)	21·11	73·31	179·97	190·56	5·9
per domestic consumer ($)	N/A	N/A	86·04	91·20	6·0
Average Capital per Consumer—($)—					
External liabilities	N/A	306·66	811·47	837·15	3·2
Original cost of assets in service	92·27	362·07	1,118·82	1,180·89	5·5
Progressive capital expenditure	N/A	373·92	1,235·69	1,294·40	4·8
Personnel Employed	N/A	3,020	8,441	8,676	2·8
Progressive Government subsidy to Electricity Supply Undertakings—($)	Nil	2,725,088	30,939,721	31,408,695	1·5

* Estimated.

APPENDIX XV

PRODUCTION STATISTICS FOR FINANCIAL YEAR ENDING 30th JUNE, 1971

Authority	Undertaking	Age	Installed Capacity—kW at 30th June, 1971 §§					Maximum Demand kW (Generated basis)	Type of Fuel §	Units Generated—kWh					Units Purchased—kWh			Total kWh sent out from Power Houses or Point of Bulk Supply	Remarks
			Hydro	Steam	Gas Turbine	Internal Combustion	Total			Hydro	Steam	Gas Turbine	Internal Cumbustion	Total	From Queensland Electric Authorities	From Other Sources	Total		
Southern Queensland—																			
Brisbane City Council ..	**	46	..	..	..	..	..	..	..	..	..	..	..	..	2,150,193,100	..	2,150,193,100	2,150,193,100	Purchases in bulk from S.E.A.
Southern Electric Authority	**	68	..	1,121,000	90,000	..	*1,211,000	948,600	CO	..	3,945,344,400	3,924,600	..	3,949,269,000	..	14,185,400	14,185,400	3,679,502,133	Purchases from B.C.C. Water Supply Department hydro-electric plant (3·2 MW) at Somerset Dam
Wide Bay–Burnett Regional Electricity Board	**	26	..	37,500	..	..	37,500	30,700	C	..	147,969,500	..	..	147,969,500	63,036,500	2,133,514	65,170,014	203,755,614	Purchases from S.E.A. and Sugar Mills
Dalby Town Council ..	**	56	..	..	..	..	..	..	..	..	..	..	..	..	51,136,000	..	51,136,000	51,136,000	Purchases in bulk from S.E.A.
Sub–Total ..	..	..	..	1,158,500	90,000	..	1,248,500	979,300	..	..	4,093,313,900	3,924,600	..	4,097,238,500	2,264,365,600	16,318,914	2,280,684,514	6,084,586,847	
Central Queensland—																			
Capricornia Regional Electricity Board	**	25	..	172,500	25,000	3,193	†200,693	144,400	CO	..	784,314,730	223,900	75,977	784,614,607	..	..	..	718,159,364	
Sub–Total ..	..	..	..	172,500	25,000	3,193	200,693	144,400	..	..	784,314,730	223,900	75,977	784.614,607	..	..	..	718,159,364	
Northern Queensland—																			
Northern Electric Authority	**	7	132,000	157,500	..	..	‡289,500	194,000	HCO	515,773,000	328,502,600	..	..	844,275,600	..	8,008,904	8,008,904	823,284,114	Purchases are from Sugar Mills
Cairns Regional Electricity Board	**	26	..	..	..	1,574	‖1,574	800	O	..	..	..	3,796,706	3,796,706	241,272,799	..	241,272,799	244,947,359	Purchases in bulk from N.E.A.
Townsville Regional Electricity Board	**	25	..	..	..	7,762	¶7,762	3,196	O	..	..	..	13,018,676	13,018,676	395,136,986	..	395,136,986	408,012,123	Purchased 394,927,586 kWh from N.E.A. and 209,400 kWh from M.R.E.B.
Mackay Regional Electricity Board	**	14	..	..	..	..	..	..	..	..	..	..	..	..	116,234,054	..	116,234,054	116,234,054	Purchased 116,171,054 kWh from N.E.A. and 63,000 kWh from T.R.E.B.
Sub–Total ..	..	..	132,000	157,500	..	9,336	298,836	197,996	..	515,773,000	328,502,600	..	16,815,382	861,090,982	752,643,839	8,008,904	760,652,743	1,592,477,650	

*Comprises—

	kW
Swanbank "A"	396,000
Swanbank "B"	240,000
Swanbank "C" (Gas Turbine)	30,000
Middle Ridge (Gas Turbine)	60,000
Bulimba "A"	65,000
Bulimba "B"	180,000
Tennyson "A"	120,000
Tennyson "B"	120,000
	1,211,000

†Comprises—

	kW	
Callide	120,000	
Rockhampton ..	52,500	
Rockhampton (Gas Turbine)	25,000	
Clermont ..	2,040	Standby plant
Emerald	675	Standby plant
Taroom	244	Standby plant
Wandoan ..	234	Standby plant
	200,693	

‡Comprises—

	kW
Kareeya (Tully Falls)	72,000
Barron Gorge ..	60,000
Collinsville ..	120 000
Townsville ..	37,500
	289,500

‖Comprises—

	kW
Thursday Island	1,100
Normanton ..	300
Georgetown ..	174
	1,574

¶Comprises—

	kW	
Hughenden ..	4,500	
McKinlay ..	32	
Julia Creek ..	400	Standby plant
Charters Towers	1,515	Standby plant
Richmond ..	235	Standby plant
Winton	1,080	Standby plant
	7,762	

§§ Maximum continuous rating (name plate) of generators.

** Regional Authorities. For location and centres of operation see map.

§C = Coal; O = Oil; H = Hydro power.

PRODUCTION STATISTICS FOR FINANCIAL YEAR ENDING 30th JUNE, 1971—continued

Authority	Undertaking	Age	Installed Capacity—kW at 30th June, 1971 §§					Maximum Demand kW (Generated Basis)	Type of Fuel §	Units Generated—kWh					Units Purchased—kWh			Total kWh sent out from Power Houses or Point of Bulk Supply	Remarks
			Hydro	Steam	Gas Turbine	Internal Combustion	Total			Hydro	Steam	Gas Turbine	Internal Combustion	Total	From Queensland Electric Authorities	From Other Sources	Total		
Western Queensland—																			
Central Western Regional Electricity Board	**	5	..	..	..	8,804	*8,804	3,710	CO	..	..	..	14,629,372	14,629,372	..	..	..	14,230,836	
Balonne Shire Council ..	St. George	45	..	..	..	580	†580	..	O	..	..	..	10,000	10,000	..	9,573,000	9,573,000	9,573,000	Purchases in bulk from Electricity Commission of New South Wales.
Barcoo Shire Council ..	Jundah ..	13	..	..	..	103	103	42	O	..	..	..	114,068	114,068	..	..	..	113,052	
Boulia Shire Council ..	Boulia ..	15	..	..	..	220	220	80	O	..	..	..	253,938	253,938	..	..	..	248,856	
Bulloo Shire Council ..	Thargomindah	78	..	..	..	88	88	48	O	..	..	..	162,039	162,039	..	..	..	158,651	
Diamantina Shire Council	Bedourie ..	1	..	..	..	20	20	6	O	..	..	..	34,505	34,505	..	..	..	32,505	
Diamantina Shire Council	Birdsville ..	7	8	..	..	8	16	7	HO	20,000	..	..	6,950	26,950	..	..	..	25,950	
Murweh Shire Council ..	Charleville	49	..	..	..	3,417	3,417	2,300	O	..	..	..	7,868,740	7,868,740	..	..	..	7,655,751	
North-Western Electric Authority	**	8	..	..	..	914	‖914	49	O	..	..	..	305,718	305,718	..	51,382,200	51,382 200	51,684,918	Purchases in bulk from Mount Isa Mines Limited
Paroo Shire Council ..	Cunnamulla	48	..	..	..	1,888	¶1,888	1,000	O	..	..	..	3,343,360	3,343,360	..	..	..	3,237,348	
Quilpie Shire Council ..	Quilpie ..	19	8	..	..	355	363	238	HO	3,725	..	..	890,406	894,131	..	..	..	870,406	
Roma Town Council ..	**	55	..	..	..	6,645	6,645	5,570	ON	..	..	..	18,673,090	18,673,090	..	..	..	18,190,685	
Sub-Total ..	..	..	16	..	..	23,042	23,058	13,050	..	23,725	..	..	46,292,186	46,315,911	..	60,955,200	60,955,200	106,021,958	

SUMMARY

Southern Queensland ..	..	..	..	1,158,500	90,000	..	1,248,500	979,300	..	..	4,093,313,900	3,924,600	..	4,097,238,500	2,264,365,600	16,318,914	2,280,684,514	6,084,586,847	
Central Queensland ..	..	..	..	172,500	25,000	3,193	200,693	144,400	..	..	784,314,730	223,900	75,977	784,614,607	..	..	..	718,159,364	
Northern Queensland ..	..	..	132,000	157,500	..	9,336	298,836	197,996	..	515,773,000	328,502,600	..	16,815,382	861,090,982	752,643,839	8,008,904	760,652,743	1,592,477,650	
Western Queensland ..	..	..	16	..	..	23,042	23,058	13,050	..	23,725	..	..	46,292,186	46,315,911	..	60,955,200	60,955,200	106,021,958	Figures in final total include units resold to Queensland Electric Authorities
TOTAL ..	..	..	132,016	1,488,500	115,000	35,571	1,771,087 ††	1,334.746	..	515,796,725	5,206,131,230	4,148,500	63,183,545	5,789,260,000	3,017,009,439	85,283,018	3,102,292,457	8,501,245,819	

*Comprises—

	kW	
Longreach	4,175	
Barcaldine	3,350	
Blackall	823	Standby Plant
Alpha	149	
Tambo	174	
Jericho	48	
Muttaburra	85	
	8,804	

† Comprises—

	kW	
Bollon	64	Standby Plant
St. George	360	
Dirranbandi	156	
	580	

‖Comprises—

	kW	
Camooweal	214	Standby Plant
Cloncurry	700	
	914	

¶Comprises—

	kW	
Cunnamulla ..	1,840	Standby Plant
Wyandra	48	
	1,888	

†† In addition there is 580kW of standby plant at Goondiwindi controlled by the North-West County Council of New South Wales.

§§ Maximum continuous rating (name plate) of generators.

**Regional Authorities. For location and centres of operation, see Map.

§ O=Oil; C=Coal; H=Hydro power; N=Natural Gas.

APPENDIX XVI

DISTRIBUTION AND CONSUMPTION STATISTICS FOR FINANCIAL YEAR ENDING 30th JUNE, 1971

Authority	Undertaking	Sales Category	Circuit Miles of Supply Lines			Numbers of Consumers at 30th June, 1971		Units Sold kWh		Average Consumption per Consumer kWh		‡ Consumption per Capita kWh	System Maximum Demand kW	Remarks
			H.V.	*L.V.	Total	Domestic	Total	Domestic	§Total	Domestic	Total			
Southern Queensland—														
Brisbane City Council	**	Net Sales ..	1,872	2,398	4,270	204,412	225,229	906,127,116	2,024,855,901	4,433	8,990	2,895	480,600	Average domestic, total and per capita consumptions refer to the Authority's Queensland area of operations
Southern Electric Authority	**	Gross Sales ..	9,531	4,289	13,820	122,234	157,043	527,880,688	3,443,147,235	..	..	..	..	
		I/A Sales ..	..	..	..	..	3	..	2,264,365,600	..	..	..	..	
		Net Sales ..	..	..	..	..	157,040	..	1,178,781,635	4,319	7,062	2,391	374,300	
Wide Bay–Burnett Regional Electricity Board	**	Net Sales ..	4,335	1,707	6,042	32,087	40,996	91,265,104	172,669,723	2,844	4,212	1,590	54,640	
Dalby Town Council	**	Net Sales ..	3,048	190	3,238	5,737	8,314	22,239,058	44,851,378	3,876	5,395	1,685	16,560	
Sub–Total	..	Gross Sales ..	18,786	8,584	27,370	364,470	431,582	1,547,511,966	5,685,524,237	..	..	..	..	Represents the operations of the interconnected southern grid
		I/A Sales ..	..	..	..	..	3	..	2,264,365,600	..	..	..	..	
		Net Sales ..	..	..	..	..	431,579	..	3,421,158,637	4,246	7,927	2,635	926,100	
Central Queensland—														
Capricornia Regional Electricity Board ..	**	Net Sales ..	3,451	831	4,282	28,893	35,229	114,731,188	670,526,721	3,971	19,033	5,249	144,400	
Sub–Total	..	Net Sales ..	3,451	831	4,282	28,893	35,229	114,731,188	670,526,721	3,971	19,033	5,249	144,400	Represents the operations of the interconnected central grid
Northern Queensland—														
Northern Electric Authority	**	Gross Sales ..	1,277	..	1,277	..	4	..	762,680,189	..	..	..	..	
		I/A Sales ..	..	..	..	..	3	..	752,371,439	..	..	..	..	
		Net Sales ..	..	..	..	..	1	..	10,308,750	..	10,308,750	N/A	7,800	
Cairns Regional Electricity Board	**	Net Sales ..	2,236	1,075	3,311	24,706	32,153	112,837,885	222,393,621	4,567	6,917	2,034	52,370	
Townsville Regional Electricity Board ..	**	Gross Sales ..	3,836	1,269	5,105	35,370	42,699	153,405,713	375,340,071	..	..	..	..	
		I/A Sales ..	..	..	..	..	1	..	63,000	..	..	..	..	
		Net Sales ..	..	..	..	..	42,698	..	375,277,071	4,337	8,789	2,813	87,056	
Mackay Regional Electricity Board ..	**	Gross Sales ..	1,848	485	2,333	17,109	20,832	66,278,108	103,353,242	..	..	..	..	
		I/A Sales ..	..	..	..	..	1	..	209,400	..	..	..	..	
		Net Sales ..	..	..	..	..	20,831	..	103,143,842	3,874	4,951	1,745	32,200	
Sub–Total	..	Gross Sales ..	9,197	2,829	12,026	77,185	95,688	332,521,706	1,463,767,123	..	..	..	..	Represents the operations of the interconnected northern grid plus several small isolated areas
		I/A Sales ..	..	..	..	..	5	..	752,643,839	..	..	..	..	
		Net Sales ..	..	..	..	..	95,683	..	711,123,284	4,308	7,432	2,356	179,426	

N.B.—The item "I/A Sales" represents inter-authority bulk sales from one electric authority to another.

* Supply is mainly 240/415 A.C., three phase 50 Hertz. S.W.E.R. supply is at 240/480 A.C., single phase, 50 Hertz.

§ The net sales of S.E.A. include 69,820,141 kWh to the Tweed area of New South Wales which have been treated as bulk supply to one consumer at the Queensland border.

‡ Based on estimated population at 30th June, 1971, for individual electric authorities.

** Regional Authorities. For location and centres of operation, see Map.

APPENDIX XVI—*continued*

DISTRIBUTION AND CONSUMPTION STATISTICS FOR FINANCIAL YEAR ENDING 30th JUNE, 1971—continued

Authority	Undertaking	Sales Category	Circuit Miles of Supply Lines			Number of Consumers at 30th June, 1971		Units Sold kWh		Average Consumption per Consumer kWh		‡ Consumption per Capita kWh	System Maximum Demand kW	Remarks
			H.V.	*L.V.	Total	Domestic	Total	Domestic	§Total	Domestic	Total			
Western Queensland—														
Central Western Regional Electricity Board	**	Net Sales ..	1,591·59	70 79	1 662·38	2,650	3,441	4,534,945	12,280.212	1,711	3,569	964	3,710	
Balonne Shire Council	St. George ..	Net Sales ..	1,761·12	23·48	1,784·60	896	1,551	2,056,000	7,299,000	2,295	4,706		2,675	Represents the operations of the system which purchases in bulk from the electricity Commission of New South Wales plus the small isolated power station at Bollon
Barcoo Shire Council	Jundah ..	Net Sales ..	..	3·80	3·80	30	46	42,730	108,338	1,424	2,355		42	
Boulia Shire Council	Boulia	Net Sales ..	5·00	4·10	9·10	61	98	89,725	229,703	1,471	2.344		80	
Bulloo Shire Council	Thargomindah	Net Sales ..	..	1·75	1·75	43	69	59,787	122,836	1,390	1,780		48	
Diamantina Shire Council	Bedourie ..	Net Sales ..	..	1·00	1·00	13	17	3,275	11,227	252	660		6	
Diamantina Shire Council	Birdsville ..	Net Sales ..	..	2·00	2 00	21	24	16,566	24,818	789	1,034	1,283	7	
Murweh Shire Council	Charleville ..	Net Sales ..	299·00	40·00	339·00	1,432	1,995	2,710,752	6,669,798	1,893	3,343		2,300	
North Western Electric Authority	**	Net Sales ..	133·07	86·61	219·68	5,939	6,832	25,535,368	45,959,623	4,300	6,727		11,049	Represents the operations of the Mount Isa–Cloncurry interconnected system and the small isolated power station at Camooweal
Paroo Shire Council	Cunnamulla ..	Net Sales ..	73·00	19·00	92·00	518	666	1,316,482	2,983,801	2,541	4,480		1,000	
Quilpie Shire Council	Quilpie ..	Net Sales ..	0·33	4·80	5·13	230	292	349,910	768,510	1,521	2.632		238	
Roma Town Council	**	Net Sales ..	1,547·00	72·00	1,619·00	2,587	3,705	6,084,662	15,621,068	2,352	4,216		5,570	
Sub–Total	..	Net Sales ..	5,410	329	5,739	14,420	18,736	42,800,202	92,078,934	2,968	4,915	1,229	26,725	

SUMMARY

Southern Queensland	..	Gross Sales ..	18,786	8,584	27,370	364,470	431,582	1,547,511,966	5,685,524,237	..	..	..	..
		I/A Sales ..	..	..	..	..	3	..	2,264 365,600	..	..	..	..
		Net Sales ..	..	..	..	..	431,579	..	3,421,158,637	4,246	7,927	2,635	926,100
Central Queensland	..	Net Sales ..	3 451	831	4,282	28,893	35 229	114,731,188	670,526,721	3,971	19,033	5,249	144,400
Northern Queensland	..	Gross Sales ..	9,197	2,829	12,026	77,185	95,688	332,521,706	1,463,767,123	..	..	..	..
		I/A Sales ..	..	..	..	..	5	..	752,643,839	..	..	..	..
		Net Sales ..	..	..	..	..	95,683	..	711,123,284	4,308	7,432	2,356	179,426
Western Queensland	..	Net Sales ..	5,410	329	5,739	14,420	18.736	42,800,202	92,078,934	2,968	4,915	1,229	26,725
TOTAL	..	Gross Sales ..	36,844	12 573	49,417	484,968	581,235	2,037,565,062	7,911,897.015	..	..	..	..
		I/A Sales ..	..	..	..	..	8	..	3,017,009,439	..	..	..	..
		Net Sales ..	..	..	..	..	581,227	..	4,894,887,576	4,201	8,422	2,689	1,276.651

N.B.—The item "I/A Sales" represents inter-authority bulk sales from one electric authority to another.

* Supply is mainly 240/415 A.C., three phase 50 Hertz. S.W.E.R. supply is at 240/480 A.C. single phase, 50 Hertz.

§ In addition the following retail sales were made in Queensland by New South Wales electric authorities—

(*a*) North-West County Council—13,864,160 kWh to 2,994 consumers over 991 miles of H.V. line and 85 miles of L.V. reticulation;

(*b*) Tenterfield Municipal Council—1,204,625 kWh to 253 consumers over 10 miles of H.V. line and 7 miles of L.V. reticulation.

‡ Based on estimated populations at 30th June, 1971, for individual electric authorities. Overall State consumption is based on population at 31st December, 1970.

** Regional Authorities. For location and centres of operation, see Map.

APPENDIX XVII

FINANCIAL STATISTICS FOR FINANCIAL YEAR ENDING 30th JUNE, 1971

Authority	Undertaking	Sales Category	*Production Cost	Normal Revenue	†Special Revenue	‡Net Profit	Cost per Unit: Generated/ Purchased	Cost per Unit: Sold	Normal Revenue per Unit Sold	Average Normal Revenue per Consumer	Average Normal Revenue per Domestic Consumer	§Original Capital Cost of Assets in Service	Average Capital Cost per Consumer	‖External Capital Liability	Personnel Employed at 30th June, 1971	Remarks
			$	$	$	$	c	c	c	$	$	$	$	$		
Southern Queensland—																
Brisbane City Council	**	Net Sales ..	37,922,839	42,426,665	..	4,503,826	1·76	1·87	2·10	188·37	81·87	88,757,718	Not applicable owing to functional distribution of assets between authorities	48,535,986	1,850	Production cost, revenue and profit exclude transmission and distribution in New South Wales Net revenue per unit and per consumer, and capital cost of assets refer to Queensland area of operations only
Southern Electric Authority	**	Gross Sales	53,585,076	54,604,743	..	1,019,667	1·35	1·56	1·59	347·71	..	299,606,414		217,183,527	3,380	
		I/A Sales	..	27,289,622	..	..	..	..	..	..	..	..		..	..	
		Net Sales ..	..	27,315,121	..	..	..	..	2·38	168·29	88·73	..		..	..	
Wide Bay–Burnett Regional Electricity Board	**	Net Sales ..	6,026,691	5,346,733	..	*Loss* 679,958	2·83	3·49	3·10	130·42	80·13	30,164,328		18,370,005	450	
Dalby Town Council	**	Net Sales ..	1,590,460	1,515,345	..	*Loss* 75,115	3·11	3·55	3·38	182·26	97·15	5,858,827		3,842,516	61	
Sub-Total	..	Gross Sales	99,125,066	103,893,486	..	4,768,420	..	..	..	..	..	424,387,287	983.34	287,932,034	5,741	
		I/A Sales	27,289,622	27,289,622	..	..	..	..	..	..	..	..	..	..	..	
		Net Sales ..	71,835,444	76,603,864	..	..	1·75	2·10	2·24	177·50	84·26	..	..	..	..	
Central Queensland—																
Capricornia Regional Electricity Board	**	Net Sales ..	12,010,082	10,846,214	..	*Loss* 1,163,868	1·53	1·79	1·62	307·88	110·69	72,120,830	2,047.20	57,496,341	859	
Sub-Total	..	Net Sales ..	12,010,082	10,846,214	..	*Loss* 1,163,868	1·53	1·79	1·62	307·88	110·69	72,120,830	2 047.20	57,496,341	859	
Northern Queensland—																
Northern Electric Authority	**	Gross Sales	11,673,388	9,305,213	..	*Loss* 2,368,175	1·37	1·53	1·22	.	..	100,361,798	Not applicable owing to functional distribution of assets between authorities	81,666,332	512	
		I/A Sales	..	9,081,633	..	..	..	..	..	..	..	..		..	..	
		Net Sales ..	..	223,580	..	..	..	..	2·17	¶	..	..		..	..	
Cairns Regional Electricity Board ..	**	Net Sales ..	6,294,933	6,401,570	..	106,637	2·57	2·83	2·88	199·10	119·08	25,427,243		16,084,295	526	
Townsville Regional Electricity Board	**	Gross Sales	10,332,765	9,795,828	..	*Loss* 536,937	2·53	2·75	2·61	229·42	115·59	33,026,694		23,739,548	651	
		I/A Sales	..	782	..	..	..	..	..	..	..	..		..	..	
		Net Sales ..	..	9,795,046	..	..	..	..	2·61	229·40	..	..		..	..	
Mackay Regional Electricity Board ..	**	Gross Sales	2,995,247	3,128,742	..	133,495	2·58	2·90	3·03	150·19	103·42	12,811,731		9,971,572	191	
		I/A Sales	..	2,601	..	..	..	..	..	..	..	..		..	..	
		Net Sales ..	..	3,126,141	..	..	..	..	3·03	150·06	..	..		..	..	
Sub-Total	..	Gross Sales	31,296,333	28,631,353	..	*Loss* 2,664,980	..	..	..	..	..	171,627,466	1,793.71	131,461,747	1,880	
		I/A Sales	9,085,016	9,085,016	..	..	..	..	..	..	..	..	..	..	..	
		Net Sales ..	22,211,317	19,546,337	..	..	2·56	3·12	2·75	204·28	114·01	..	..	..	..	

N.B.—The item "I/A Sales" represents inter-authority bulk sales from one electric authority to another.

* Includes costs of generation, transmission, distribution, maintenance, management, interest and depreciation.

† Includes special loan rates, contributions from an authority's general fund and interest and redemption subsidy paid by State Government.

‡ Represents the sum of normal revenue and special revenue less production cost. All revenue and costs relating to appliance retailing are excluded, sinking fund accretions are excluded.

§ Includes capital cash subsidy paid by State Government. Owing to inter-authority sales certain assets are of benefit to consumers within the area of more than one authority.

‖ Total capital liability of operating authority, i.e., excludes capital cash subsidy paid by State Government or any other external contribution to capital cost.

¶ No figure shown, as total net sales were to one large industrial consumer.

** Regional Authorities. For location and centres of operations see Map.

FINANCIAL STATISTICS FOR FINANCIAL YEAR ENDING 30th JUNE, 1971—continued

Authority	Undertaking	Sales Category	*Production Cost	Normal Revenue	†Special Revenue	‡Net Profit	Cost per Unit: Generated/ Purchased	Cost per Unit: Sold	Normal Revenue per Unit Sold	Average Normal Revenue per Consumer	Average Normal Revenue per Domestic Consumer	§Original Capital Cost of Assets in Service	Average Capital Cost per Consumer	‖External Capital Liability	Personnel Employed at 30th June, 1971	Remarks
			$	$	$	$	c	c	c	$	$	$	$	$		
Western Queensland—																
Central Western Regional Electricity Board	**	Net Sales ..	900,812	817,591	468	*Loss* 82,753	6·16	7·34	6·66	237·60	102·91	5,465,763	1,588·42	3,002,943	62	
Balonne Shire Council	St. George ..	Net Sales ..	354,144	358,955	..	4,811	3·70	4·85	4·92	231·43	92·36	1,916,124	1,235·41	1,321,414	12	
Barcoo Shire Council	Jundah ..	Net Sales ..	18,105	10,929	4,863	*Loss* 2,313	15·87	16·71	10·09	237·59	126·07	64,912	1,411·13	18,411	1	
Boulia Shire Council	Boulia ..	Net Sales ..	24,625	21,079	4,978	1,432	9·70	10·72	9·18	215·08	133·90	122,782	1,252·88	39,418	2	
Bulloo Shire Council	Thargomindah	Net Sales ..	14,747	9,382	10,685	5,320	9·10	12·01	7·64	135·97	83·86	48,003	695·70	15,067	1	
Diamantina Shire Council	Bedourie ..	Net Sales ..	2,855	2,176	..	*Loss* 679	8·27	25·43	19·38	128·00	78·85	17,549	1,032·29	10,744	2	
Diamantina Shire Council	Birdsville ..	Net Sales ..	2,986	2,983	1,361	1,358	11·08	12·03	12·02	124·29	98·48	19,023	792·63	7,806	1	
Murweh Shire Council	Charleville ..	Net Sales ..	292,882	299,950	2,833	9,901	3·72	4·39	4·50	150·35	72·61	1,745,818	875·10	592,682	16	
North Western Electric Authority ..	**	Net Sales ..	1,403,793	1,445,607	420	42,234	2·72	3·05	3·15	211·59	132·22	3,581,945	524·29	2,051,240	45	
Paroo Shire Council	Cunnamulla	Net Sales ..	127,646	128,245	348	947	3·82	4·28	4·30	192·56	98·41	974,720	1,463·54	302,695	10	
Quilpie Shire Council	Quilpie ..	Net Sales ..	52,472	54,453	433	2,414	5·87	6·83	7·09	186·48	97·49	161,412	552·78	29,032	5	
Roma Town Council	**	Net Sales ..	625,703	612,434	39	*Loss* 13,230	3·35	4·01	3·92	165·30	72·17	4,110,630	1,109·48	2,295,315	39	
Sub-Total	..	Net Sales ..	3,820,770	3,763,784	26,428	*Loss* 30,558	3·56	4·15	4·09	200·89	105·65	18,228,681	972·92	9,686,767	196	

SUMMARY

Southern Queensland	..	Gross Sales	99,125,066	103,893,486	..	4,768,420	..	..	..	..	..	424,387,287	983·34	287,932,034	5,741	
		I/A Sales	27,289,622	27,289,622	..	..	..	..	..	..	..	..	..	..	..	
		Net Sales ..	71,835,444	76,603,864	..	..	1·75	2·10	2·24	177·50	84·26	..	..	..	..	
Central Queensland	..	Net Sales ..	12,010,082	10,846,214	..	*Loss* 1,163,868	1·53	1·79	1·62	307·88	110·69	72,120,830	2,047·20	57,496,341	859	
Northern Queensland	..	Gross Sales	31,296,333	28,631,353	..	*Loss* 2,664,980	..	..	..	..	..	171,627,466	1,793·71	131,461,747	1,880	
		I/A Sales	9,085,016	9,085,016	..	..	..	..	..	..	..	..	..	..	..	
		Net Sales ..	22,211,317	19,546,337	..	..	2·56	3·12	2·75	204·28	114·01	..	..	..	..	
Western Queensland	..	Net Sales ..	3,820,770	3,763,784	26,428	*Loss* 30,558	3·56	4·15	4·09	200·89	105·65	18,228,681	972·92	9,686,767	196	
TOTAL	..	Gross Sales	146,252,251	147,134,837	26,428	909,014	..	..	..	..	..	686,364,264	1,180·89	486,576,889	8,676	Figures in final column include 168 persons engaged on appliance retailing
		I/A Sales	36,374,638	36,374,638	..	..	..	..	..	..	..	..	..	..	..	
		Net Sales ..	109,877,613	110,760,199	..	..	1·87	2·24	2·26	190·56	91·20	..	..	..	..	

N.B.—The item "I/A Sales" represents inter-authority bulk sales from one electric authority to another.

* Includes costs of generation, transmission, distribution, maintenance, management, interest and depreciation.

† Includes special loan rates, contributions from an authority's general fund and interest and redemption subsidy paid by State Government.

‡ Represents the sum of normal revenue and special revenue less production cost. All revenue and costs relating to appliance retailing are excluded. Sinking fund accretions are excluded.

§ Includes capital cash subsidy paid by State Government. Owing to inter-authority sales certain assets are of benefit to consumers within the area of more than one authority.

‖ Total capital liability of operating authority, i.e., excludes capital cash subsidy paid by State Government or any other external contribution to capital cost.

** Regional Authorities. For location and centres of operations see Map.

The first interconnecting transmission line with the Brisbane area is now nearing completion and should be in service before the end of 1972. This will allow supply in Central Queensland to be augmented from South-East Queensland.

For administrative reasons, the ownership of this transmission line has been transferred from the Commission to the S.E.A.Q. To the present time the expenditure on this line has exceeded $11.5 million. Survey work on the second transmission line is now well advanced.

(d) NORTH QUEENSLAND

In this area the Northern Electric Authority of Queensland is the generation and main transmission authority and provides electric power in bulk to the Cairns, Townsville and Mackay Regional Electricity Boards for distribution to consumers in their respective areas. Bulk supply is also made available direct to certain large consumers within the Authorities area of supply.

The Cairns and Townsville Regional Electricity Boards also operate internal combustion stations which supply centres in isolation from the main interconnected system.

Expenditure on electrical development in the area during the past year was as follows:—

Authority	Generation	Transmission	Distribution	Miscellaneous	Total
	$	$	$	$	$
Mackay R.E. Board	..	..	606,508	349,002	955,510
Townsville R.E. Board	15,804	379,988	1,139,609	356,437	1,891,838
Cairns R.E. Board	44,172	26,356	922,341	299,711	1,292,580
Northern Electric Authority	2,622,181	757,282	..	232,291	3,611,754
	2,682,157	1,163,626	2,668,458	1,237,441	7,751,682

Generation

The total number of units generated by the power stations serving the interconnected system was 993·0 million, an increase of 17·6 per cent. on the previous year, as follows:—

Station	Production 1970–71	Production 1971–72
	kWh (Millions)	kWh (Millions)
Kareeya (Hydro)	309·5	323·3
Barron Gorge (Hydro)	206·3	269·5
Collinsville (Steam)	328·4	399·7
Townsville (Steam)	0·1	·5
Total	844·3	993·0

In addition 17,531,936 units were generated in small isolated power stations remaining under the control of the Regional Electricity Boards, an average increase of 4·3 per cent on the previous year, as follows:—

Station	Production 1970–71	Production 1971–72
	kWh	kWh
Cairns R.E. Board—		
Thursday Island	2,984,340	3,058,570
Normanton	526,382	741,928
Georgetown	285,984	310,687
Sub-total	3,796,706	4,111,185
Townsville R.E. Board—		
Hughenden	12,879,850	13,289,780
*Winton	41,652	38,477
*Richmond	3,228	906
*Julia Creek	19,148	11,225
*Charters Towers	32,035	30,450
McKinlay	42.763	49,913
Sub-total	13,018,676	13,420,751
Total	16,815,382	17,531,936

* Standby only.

Power station capacities and demands on the interconnected system controlled by The Northern Electric Authority of Queensland were as follows:—

Station	Installed Capacity	Effective Capacity	Maximum Demand 1970–71	Maximum Demand 1971–72	Percentage Increase
	MW	MW	MW	MW	
Kareeya (Hydro) ..	72·0				
Barron Gorge (Hydro)	60·0				
Collinsville (Steam) ..	120·0	259·5	194·0	220·0	13·4
Townsville (Steam) ..	37·5				
	289·5				

In addition capacities and demands for isolated stations remaining under the control of the Regional Electricity Boards were as follows:—

Station	Installed Capacity	Effective Capacity	Maximum Demand 1970–71	Maximum Demand 1971–72	Percentage Increase
	kW	kW	kW	kW	
Cairns R.E. Board—					
Thursday Island	1,600	1,100	640	680	6·3
Normanton ..	300	200	125	172	37·6
Georgetown ..	174	119	70	85	21·4
Sub-total ..	2,074	1,419	835	937	12·2
Townsville R.E. Board—					
Hughenden ..	4,500				
Winton	1,080	4,935	3,196	3,000	−6·1
Richmond ..	235				
Julia Creek ..	560				
Charters Towers	1,515	990	*N/A	*N/A	..
McKinlay ..	32	16	16	16	..
Sub-total ..	7,922	5,941	3,212	3,016	−6·1
Total	9,996	7,360	4,047	3,953	−2·3

* Not applicable. Connected to coastal system. Limited standby use only

Construction work for the installation of the No. 5 set, a 60MW machine at the Collinsville station is well advanced. All major contracts for the station have been let and the machine is scheduled to be commissioned in 1974.

Transmission

A new 132kV transmission line from the Goonyella area to a further coal mining project is planned and material contracts are being prepared. Other works to consolidate the existing system have been undertaken.

Distribution

The Cairns, Townsville and Mackay Regional Electricity Boards are responsible for distribution of electricity in their respective areas. These Boards purchased 814·3 million units from The Northern Electric Authority of Queensland for distribution to their respective consumers (in addition to that generated in the small stations operated by the Regional Boards as shown above) an increase, of 8·2 per cent on the previous year.

Details are as follows:—

Authority	Units Purchased (kWh Millions) 1970–71	Units Purchased (kWh Millions) 1971–72
Cairns Regional Electricity Board	241·3	253·2
Townsville Regional Electricity Board ..	395·1	429·0
Mackay Regional Electricity Board	116·2	132·1
*Others	10·3	76·3
Total	762·9	890·6

* Includes bulk purchase of power from the Northern Electric Authority of Queensland by large industrial consumers.

A total of 340 miles of transmission and distribution lines were erected by all Authorities during the year giving supply to 1,863 consumers.

For further details of North Queensland development refer to Appendices IX to XI page 43 to page 61 and Appendix XIII pages 65 to 71 of this report.

(e) WESTERN QUEENSLAND

This section of the report covers areas supplied with electricity by the following:—

(i) The Central Western Regional Electricity Board.
(ii) Roma Electric Authority (Roma Town Council).
(iii) North Western Electric Authority (Mount Isa City Council).
(iv) North West County Council of New South Wales.
(v) Undertakings operated by the Balonne, Barcoo, Boulia, Bulloo, Diamantina, Murweh, Paroo and Quilpie Shire Councils, and the New South Wales Municipality of Tenterfield.

Total expenditure during the year by western Queensland undertakings was as follows:—

	$
Generation	565,273
Transmission and Distribution	1,021,178
Miscellaneous	25,543
Total	$1,611,994

APPENDIX XVIII

LIST OF TOWNS AND LOCALITIES IN QUEENSLAND SUPPLIED WITH ELECTRICITY AS AT 1st JULY, 1972

Abbreviations for Major Supply Authorities:

S.E.A.Q.	Southern Electric Authority of Queensland, Brisbane.
W.B–B.R.E.B.	Wide Bay–Burnett Regional Electricity Board, Maryborough.
Cap. R.E.B.	Capricornia Regional Electricity Board, Rockhampton.
M.R.E.B.	Mackay Regional Electricity Board, Mackay.
T.R.E.B.	Townsville Regional Electricity Board, Townsville.
C.R.E.B.	Cairns Regional Electricity Board, Cairns.
C.W.R.E.B.	Central Western Regional Electricity Board, Barcaldine.

The system of supply is 240/415 volts, A.C., 3 phase, 50 cycles except in localities marked * where the system of supply is 240/480 volts, A.C., single phase, 50 cycles. In towns and localities marked ** the system of supply is 240/415 volts, A.C., 3 phase, 50 cycles, but nearby there is some supply at 240/480 volts, A.C., single phase, 50 cycles.

Locality	Electric Authority
A	
*Abbeywood	W.B–B.R.E.B.
Abercorn	Cap. R.E.B.
Abergowrie	T.R.E.B.
Acland	S.E.A.Q.
Advancetown	S.E.A.Q.
Airdmillan	T.R.E.B.
Airey Park	W.B–B.R.E.B.
Airlie	M.R.E.B.
Airville	T.R.E.B.
Albany Creek	S.E.A.Q.
Alberton	S.E.A.Q.
Alexandra	M.R.E.B.
Alexandra Headlands	S.E.A.Q.
Alexandra Hills	S.E.A.Q.
Algoma	C.R.E.B.
*Alice Creek	W.B–B.R.E.B.
Allan	S.E.A.Q.
Allandale	S.E.A.Q.
Allans Creek	S.E.A.Q.
**Allendale	M.R.E.B.
Alligator Creek	M.R.E.B.
Allora	S.E.A.Q.
Alloway	W.B–B.R.E.B.
Alma Creek	Cap. R.E.B.
Almaden	C.R.E.B.
Aloomba	C.R.E.B.
Alpha	C.W.R.E.B.
*Alton Downs	Cap. R.E.B.
Alva Beach	T.R.E.B.
Amamoor	S.E.A.Q.
Amberley	S.E.A.Q.
Ambrose	Cap. R.E.B.
Amby	Roma Town Council, Roma
Amiens	S.E.A.Q.
**Aminungo	M.R.E.B.
Amity Point	S.E.A.Q.
Ana Branch	T.R.E.B.
Anchorfield	S.E.A.Q.
Andergrove	M.R.E.B.
*Andromache	M.R.E.B.
Anduramba	S.E.A.Q.
Antigua	W.B–B.R.E.B.
Antil Plains	T.R.E.B.
Applethorpe	S.E.A.Q.
Apple-tree Creek	W.B–B.R.E.B.
Apunyal	Dalby Town Council, Dalby
Aramac	C.W.R.E.B.
*Aramara	W.B–B.R.E.B.
Arana Hills	S.E.A.Q.
Aratula	S.E.A.Q.
Arcadia	T.R.E.B.
*Armstrongs Beach	M.R.E.B.
Armstrong Creek	S.E.A.Q.
Arribaby Creek	S.E.A.Q.
Ascot	S.E.A.Q.
Ashwell	S.E.A.Q.
Atherton	C.R.E.B.
Athol	S.E.A.Q.
Atkinson's Lagoon	S.E.A.Q.
Aubigny	S.E.A.Q.
Augathella	Murweh Shire Council, Charleville
Averglen	S.E.A.Q.
Avoca	W.B–B.R.E.B.
Avoca Creek	S.E.A.Q.
Avondale	W.B–B.R.E.B.
Ayr	T.R.E.B.
*Ayton	C.R.E.B.
B	
Babinda	C.R.E.B.
Back Creek	S.E.A.Q.
Back Plains	S.E.A.Q.
Badgen	S.E.A.Q.
Bahrs Scrub	S.E.A.Q.
*Baileys Creek	C.R.E.B.
Bajool	Cap. R.E.B.
Baker's Creek	M.R.E.B.
*Bakerville	C.R.E.B.
*Baking Board	Dalby Town Council, Dalby
*Balberra	M.R.E.B.
Bald Knob	S.E.A.Q.
*Balfe's Creek	T.R.E.B.
Balgal	T.R.E.B.
Balgowan	S.E.A.Q.
Balingool	S.E.A.Q.
Ballandean	S.E.A.Q.
*Ball Bay	M.R.E.B.
Balmoral	S.E.A.Q.
**Balnagowan	M.R.E.B.
*Balook	M.R.E.B.
Bambaroo	T.R.E.B.
**Banana	Cap. R.E.B.
Banapan	W.B–B.R.E.B.
*Ban Ban Springs	W.B–B.R.E.B.
Bancroft	Cap. R.E.B.
Banks Creek	S.E.A.Q.
Banksia Hill	S.E.A.Q.
Banks Pocket	S.E.A.Q.
Banna	C.R.E.B.
Bapaume	S.E.A.Q.
*Barakula	Dalby Town Council, Dalby
Baralaba	Cap. R.E.B.
Barambah	W.B–B.R.E.B.
Barcaldine	C.W.R.E.B.
**Barcoo	M.R.E.B.
Baree	Cap. R.E.B.
Bargara (including Neilson Park)	W.B–B.R.E.B.
Barkers Creek	W.B–B.R.E.B.
Barlil	W.B–B.R.E.B.
Barmoya	Cap. R.E.B.
Barmundu	Cap. R.E.B.
Barney View	S.E.A.Q.
*Barolin	W.B–B.R.E.B.
Baroon Pocket	S.E.A.Q.
Barrata	T.R.E.B.
*Barrine	C.R.E.B.
*Barringha	T.R.E.B.
*Barron Pocket	M.R.E.B.
Bartle Frere	C.R.E.B.
Basin Pocket	S.E.A.Q.
Bauple	W.B–B.R.E.B.
Baxter Creek	S.E.A.Q.
Beachmere	S.E.A.Q.
Beaconsfield	M.R.E.B.
Beallah	M.R.E.B.
*Beatrice Creek	M.R.E.B.
*Beatrice River	C.R.E.B.
Beauaraba	S.E.A.Q.
Beaudesert	S.E.A.Q.
Bedourie	Diamantina Shire Council, Bedourie
*Beebo	North-West County Council, Inverell, New South Wales
Beecher	Cap. R.E.B.
Beechmont	S.E.A.Q.
*Beelbee	Dalby Town Council, Dalby
*Beelbi Creek	W.B–B.R.E.B.
Beenam	S.E.A.Q.
Beenham Range	S.E.A.Q.
Beenleigh	S.E.A.Q.
Beerburrum	S.E.A.Q.
*Beeron	W.B–B.R.E.B.
Beerwah	S.E.A.Q.
Beeva	T.R.E.B.
Behana	C.R.E.B.
*Belah	Dalby Town Council, Dalby
Bell	Dalby Town Council, Dalby
Bella Creek	S.E.A.Q.
**Bell Creek	Cap. R.E.B.
Bellenden-Ker	C.R.E.B.
Bellevue	S.E.A.Q.
Belli Creek	S.E.A.Q.
Belli Park	S.E.A.Q.
Belli Pocket	S.E.A.Q.
Bellmere	S.E.A.Q.
Bells Bridge	W.B–B.R.E.B.
Bells Creek	S.E.A.Q.
Bell's Pocket	S.E.A.Q.
Bells Ridge	S.E.A.Q.
Bellthorpe	S.E.A.Q.
Bellview	S.E.A.Q.
Belmont	Cap. R.E.B.
Bemerside	T.R.E.B.
*Benair	W.B–B.R.E.B.
Benaraby	Cap. R.E.B.
Benarkin	W.B–B.R.E.B.
*Benholme	M.R.E.B.
Benobble	S.E.A.Q.
Benowa	S.E.A.Q.
Berat	S.E.A.Q.
Berdaje	T.R.E.B.
Bergen	S.E.A.Q.
Bergin's Pocket	S.E.A.Q.
Berndale	S.E.A.Q.
*Berriwerri	M.R.E.B.
Bessie Point	C.R.E.B.
Bethania	S.E.A.Q.
Biarra	S.E.A.Q.
Biboohra	C.R.E.B.
Biddaddaba Creek	S.E.A.Q.
Biddeston	S.E.A.Q.
Bidwell	W.B–B.R.E.B.
Biggenden	W.B–B.R.E.B.
*Bilboa	W.B–B.R.E.B.
Bilinga	S.E.A.Q.
Biloela	Cap. R.E.B.
Bilwon	C.R.E.B.
Bilyana	C.R.E.B.
*Bindle	Balonne Shire Council, St. George
Bingera	W.B–B.R.E.B.
Bingil Bay	C.R.E.B.
Binjour	W.B–B.R.E.B.
Binna Burra	S.E.A.Q.
Birdsville	Diamantina Shire Council, Bedourie
Birham	S.E.A.Q.
Birkdale	S.E.A.Q.
Birru	S.E.A.Q.
*Birthamba	W.B–B.R.E.B.
Blackall	C.W.R.E.B.
Blackbutt	W.B–B.R.E.B.
Black Duck Creek	S.E.A.Q.
Black Gully	S.E.A.Q.
Blackmount	W.B–B.R.E.B.
Black Mountain	S.E.A.Q.
*Black River	T.R.E.B.
Black Rock	T.R.E.B.
Blacks Beach	M.R.E.B.
Black Snake Creek	W.B–B.R.E.B.
Blackstone	S.E.A.Q.
Blackwater	Cap. R.E.B.
Blair Athol	Cap. R.E.B.
Blanchview	S.E.A.Q.
Blantyre	S.E.A.Q.
*Blaxland	Dalby Town Council, Dalby
Blenheim	S.E.A.Q.
Bli Bli	S.E.A.Q.
*Bloomfield	C.R.E.B.
Bloomsbury	M.R.E.B.
*Bloomsbury North	M.R.E.B.
*Blue Mountain	M.R.E.B.
Bluewater	T.R.E.B.
Bluff	Cap. R.E.B.
*Boar Pocket	C.R.E.B.
Boat Mountain	W.B–B.R.E.B.
Bobawaba	T.R.E.B.
*Bogandilla	Dalby Town Council, Dalby
**Boldon	M.R.E.B.
Bollier	S.E.A.Q.
Bollon	Balonne Shire Council, St. George
Bondoola	Cap. R.E.B.
*Bones Knob	C.R.E.B.
Bongaree	S.E.A.Q.
Bongeen	S.E.A.Q.
Bonna	W.B–B.R.E.B.
Bontaba	C.R.E.B.
Bony Mountain	S.E.A.Q.
Boodua	S.E.A.Q.
Boogan	C.R.E.B.
*Booie	W.B–B.R.E.B.
Booinbah	W.B–B.R.E.B.
*Boolba	Balonne Shire Council, St. George
Boolburra	Cap. R.E.B.
Booloongie	W.B–B.R.E.B.
Booloumba Creek	S.E.A.Q.
Boompa	W.B–B.R.E.B.
Boonah	S.E.A.Q.
*Boonara	W.B–B.R.E.B.
Boonarga	Dalby Town Council, Dalby
*Boondooma West	W.B–B.R.E.B.
Boonenne	W.B–B.R.E.B.
Boongana	M.R.E.B.
Boongary	Cap. R.E.B.
*Boonooroo	W.B–B.R.E.B.
*Boonyouin	W.B–B.R.E.B.
*Booral	W.B–B.R.E.B.
Boora-Mugga	S.E.A.Q.
Booroobin	S.E.A.Q.
Bootooloo	T.R.E.B.
**Booubyjan	W.B–B.R.E.B.
Booval	S.E.A.Q.
*Boovan	W.B–B.R.E.B.
*Boowoogum	W.B–B.R.E.B.
*Booyal	W.B–B.R.E.B.
*Booyan	W.B–B.R.E.B.
Borallen	S.E.A.Q.

APPENDIX XVIII—*continued*

LIST OF TOWNS AND LOCALITIES IN QUEENSLAND SUPPLIED WITH ELECTRICITY AS AT 1st JULY, 1972—continued

Locality	Electric Authority
Boreen Point	S.E.A.Q.
Bororen	Cap. R.E.B.
Borumba Dam	S.E.A.Q.
Bouldercombe	Cap. R.E.B.
Boulia	Boulia Shire Council, Boulia
Bowen	T.R.E.B.
Bowen River	T.R.E.B.
Bowenville	S.E.A.Q.
Boyland	S.E.A.Q.
*Boynedale	Cap. R.E.B.
Boyne Island	Cap. R.E.B.
*Boyneside	W.B.–B.R.E.B.
*Boynwood	W.B.–B.R.E.B.
Braclaba	S.E.A.Q.
**Bracewell	Cap. R.E.B.
Braemeadows	T.R.E.B.
Bramston Beach	C.R.E.B.
Branch View	S.E.A.Q.
Brandon	T.R.E.B.
Branyan	W.B.–B.R.E.B.
**Breadalbane	M.R.E.B.
Bribie Island	S.E.A.Q.
Bridges	S.E.A.Q.
Brigalow	Dalby Town Council Dalby
*Brightley	M.R.E.B.
Brightview	S.E.A.Q.
Brigooda	W.B.–B.R.E.B.
Brisbane	Brisbane City Council
Broadbeach	S.E.A.Q.
Broadwater	S.E.A.Q.
Bromelton	S.E.A.Q.
Bromfleet	S.E.A.Q.
Brookhill	T.R.E.B.
Brooklands	S.E.A.Q.
Brooklands	W.B.–B.R.E.B.
Brookstead	S.E.A.Q.
Brooloo	S.E.A.Q.
*Brooweena	W.B.–B.R.E.B.
*Brooyah	W.B.–B.R.E.B.
Broughton River	T.R.E.B.
Browns Plains	S.E.A.Q.
Broxburn	S.E.A.Q.
Bruce Weir	C.R.E.B.
Bryden	S.E.A.Q.
Brymaroo	S.E.A.Q.
Buaraba	S.E.A.Q.
Buaraba Creek	S.E.A.Q.
Bucasia	M.R.E.B.
Bucca	W.B.–B.R.E.B.
Buccan	S.E.A.Q.
Buderim	S.E.A.Q.
Budgee	S.E.A.Q.
Bueliwah	S.E.A.Q.
Builyan	Cap. R.E.B.
Bukali	Cap. R.E.B.
Bular	W.B.–B.R.E.B.
Bullencourt	S.E.A.Q.
Bull Yard	W.B.–B.R.E.B.
Bunburra	S.E.A.Q.
Bundaberg	W.B.–B.R.E.B.
Bundall	S.E.A.Q.
Bundamba	S.E.A.Q.
Buneru	Cap. R.E.B.
*Bungadoo	W.B.–B.R.E.B.
Bungunya	North-West County Council, Inverell, New South Wales
Bunjurgen	S.E.A.Q.
Bunkers Hill	S.E.A.Q.
Bunya	S.E.A.Q.
Bunyaville	S.E.A.Q.
Burleigh	S.E.A.Q.
Burnett Heads	W.B.–B.R.E.B.
Burnside	S.E.A.Q.
Burpengary	S.E.A.Q.
Burpu	C.R.E.B.
*Burra Burri	Dalby Town Council. Dalby
Burrum	W.B.–B.R.E.B.
Burrum Heads	W.B.–B.R.E.B.
Burton	S.E.A.Q.
Burua	Cap. R.E.B.
Bushley	Cap. R.E.B.
*Butchers Creek	C.R.E.B.
*Buthurra	M.R.E.B.
*Byee	W.B.–B.R.E.B.
*Byer	M.R.E.B.
*Bymount	Roma Town Council, Roma
Byrnestown	W.B.–B.R.E.B.

C

Locality	Electric Authority
Cabarlah	S.E.A.Q.
*Cabawin	Dalby Town Council, Dalby
Cabonda	S.E.A.Q.
Caboolture	S.E.A.Q.
Caboonbah	S.E.A.Q.
Caffey	S.E.A.Q.
Cainbable Creek	S.E.A.Q.
Cairns	C.R.E.B.
Calavos	W.B.–B.R.E.B.
Calen	M.R.E.B.
*Calgoa	W.B.–B.R.E.B.
Calico Creek	S.E.A.Q.
*Callide Township	Cap. R.E.B.
Calliope	Cap. R.E.B.
Caloundra	S.E.A.Q.
Calvert	S.E.A.Q.
Cambooya	S.E.A.Q.
Cambroon	S.E.A.Q.
Camden Park	S.E.A.Q.
*Cameby	Dalby Town Council, Dalby
*Cameron's Pocket	M.R.E.B.
Camooweal	North-Western Electric Authority, Mt. Isa
*Campbells Creek	W.B.–B.R.E.B.
Campbell's Plains	S.E.A.Q.
Campbells Pocket	S.E.A.Q.
Camp Creek	S.E.A.Q.
Camp Mountain	S.E.A.Q.
Campwin Beach	M.R.E.B.
Carina	S.E.A.Q.
Cannindah	Cap. R.E.B.
Canning Vale	S.E.A.Q.
Cannon Creek	S.E.A.Q.
Cannonvale Beach	M.R.E.B.
Cannon Valley	M.R.E.B.
Canungra	S.E.A.Q.
Capalaba	S.E.A.Q.
*Cape Hillsborough	M.R.E.B.
Capella	Cap. R.E.B.
Cape River	T.R.E.B.
Caravonica	C.R.E.B.
Carbeen	C.R.E.B.
Carbendale	S.E.A.Q.
Carbrook	S.E.A.Q.
Cardstone	Northern Electric Authority of Queensland, Townsville
Cardwell	C.R.E.B.
Cardwell Range	C.R.E.B.
Carmila	M.R.E.B.
Carmyle	W.B.–B.R.E.B.
Carole Park	S.E.A.Q.
Carpendale	S.E.A.Q.
Carrara	S.E.A.Q.
Carruchan	C.R.E.B.
Carstairs	T.R.E.B.
Carters Ridge	S.E.A.Q.
Cash's Crossing	S.E.A.Q.
**Cassowary	C.R.E.B.
Caswell Creek	Cap. R.E.B.
Cathu	M.R.E.B.
*Cattle Creek	W.B.–B.R.E.B.
Cawdor	S.E.A.Q
Cecil Plains	S.E.A.Q.
Cedar Creek (Albert Shire)	S.E.A.Q.
Cedar Creek (Maroochy Shire)	S.E.A.Q.
Cedar Creek (Pine Shire)	S.E.A.Q.
Cedar Grove	S.E.A.Q.
Cedar Pocket	S.E.A.Q.
Cedarton	S.E.A.Q.
Cedar Vale	S.E.A.Q.
Cement Hills	North-West County Council, Inverell, New South Wales
*Chahpingah	W.B.–B.R.E.B.
Chambers Flat	S.E.A.Q.
*Chances Plain	Dalby Town Council, Dalby
Charleville	Murweh Shire Council, Charleville
Charlton	S.E.A.Q.
Charlwood	S.E.A.Q.
Charringa	C.R.E.B.
Charters Towers	T.R.E.B.
Chatsworth	S.E.A.Q.
Chelmsford	W.B.–B.R.E.B.
*Chelona	M.R.E.B.
Cherbourg (Aboriginal) Settlement	W.B.–B.R.E.B.
Chevallum	S.E.A.Q.
Chewko	C.R.E.B.
Childers	W.B.–B.R.E.B.
Chillagoe	C.R.E.B.
**Chilverton	C.R.E.B.
Chinaman's Creek	S.E.A.Q.
Chinchilla	Dalby Town Council, Dalby
Chingee Creek	S.E.A.Q.
Chircan	C.R.E.B.
Chirnside	Cap. R.E.B.
Christmas Creek	S.E.A.Q.
Churchbank	S.E.A.Q.
Cinnabar	W.B.–B.R.E.B.
Clairview	Cap. R.E.B.
Claredale	T.R.E.B.
Claredon	S.E.A.Q.
Clarendon	S.E.A.Q.
Clarigaba Creek	S.E.A.Q.
Clayton	W.B.–B.R.E.B.
Clear Mountain	S.E.A.Q.
Clermont	Cap. R.E.B.
Cleveland	S.E.A.Q.
Clifton	S.E.A.Q.
Clifton Beach	C.R.E.B.
**Cliftonville	M.R.E.B.
Clinton Park	Cap. R.E.B.
Clintonvale	S.E.A.Q.
Cloncurry	North-Western Electric Authority, Mt. Isa
Clonmel	Cap. R.E.B.
Closeburn	S.E.A.Q.
*Cloyna	W.B.–B.R.E.B.
Cloyne	W.B.–B.R.E.B.
Coalbank	S.E.A.Q.
Coal Creek	S.E.A.Q.
Coalstoun Lakes	W.B.–B.R.E.B.
Cobby Creek	S.E.A.Q.
Coconuts	C.R.E.B.
Coldwater	T.R.E.B.
Coles Creek	S.E.A.Q.
Colevale	T.R.E.B.
Coleyville	S.E.A.Q.
Colinton	S.E.A.Q.
College Green	S.E.A.Q.
College View	S.E.A.Q.
Collinsville	T.R.E.B.
*Colosseum	Cap. R.E.B.
*Colston Park	M.R.E.B.
*Columboola	Dalby Town Council, Dalby
Comet	Cap. R.E.B.
Commissioners Flat	S.E.A.Q.
Como	S.E.A.Q.
**Condamine	Dalby Town Council Dalby
Condamine Plains	S.E.A.Q.
Coneel	Cap. R.E.B.
Coningsby	M.R.E.B.
Connemara	S.E.A.Q.
Conondale	S.E.A.Q.
**Constant Creek	M.R.E.B.
*Conway Beach	M.R.E.B.
Coochin	S.E.A.Q.
Coochin Creek	S.E.A.Q.
Cooeeimbardi	S.E.A.Q.
Cooktown	C.R.E.B.
Coolabine Creek	S.E.A.Q.
Coolabunia	W.B.–B.R.E.B.
Coolana	S.E.A.Q.
Coolangatta	S.E.A.Q.
Coolgarra	C.R.E.B.
Cooloolabin	S.E.A.Q.
Cooloola Estate	S.E.A.Q.
Coolum	S.E.A.Q.
Coolum Beach	S.E.A.Q.
Coombabah	S.E.A.Q.
Coomera	S.E.A.Q.
Coominya	S.E.A.Q.
*Coomrith	Dalby Town Council Dalby
Coondoo	S.E.A.Q.
*Coongoola	Paroo Shire Council, Cunnamulla
Cooper's Hill	S.E.A.Q.
Cooran	S.E.A.Q.
*Cooranga North	Dalby Town Council, Dalby
Cooroy	S.E.A.Q.
Cooroy West	S.E.A.Q.
*Coorumba	C.R.E.B.
Cootharaba	S.E.A.Q.
Coowonga	Cap. R.E.B.
*Cooya Beach	C.R.E.B.
Cooyar	W.B.–B.R.E.B.
Coppabella	M.R.E.B.
Coquette Point	C.R.E.B.
Cordalba	W.B.–B.R.E.B.
Cordelia	T.R.E.B.
Corella	S.E.A.Q.
Coreen	Cap. R.E.B.
*Corfield	T.R.E.B.
*Coringa	W.B.–B.R.E.B.
Corndale	W.B.–B.R.E.B.
Coronation Beach	S.E.A.Q.
Cotton Tree Beach	S.E.A.Q.
Cottonvale	S.E.A.Q.
Coulson	S.E.A.Q.
Cowley	C.R.E.B.
Cracow	Cap. R.E.B.
Craiglie	C.R.E.B.
*Craignish	W.B.–B.R.E.B.
Cranley	S.E.A.Q.
Crawford	W.B.–B.R.E.B.
**Crediton	M.R.E.B.
Cresley	Dalby Town Council, Dalby
Cressbrook	S.E.A.Q.
Croftby	S.E.A.Q.
Crohamhurst	S.E.A.Q.
Cromarty	T.R.E.B.
Crosshill	S.E.A.Q.
Crossroads Calliope	Cap. R.E.B.
Crowley Vale	S.E.A.Q.
*Crownthorpe	W.B.–B.R.E.B.
Crow's Nest	S.E.A.Q.
Cryna	S.E.A.Q.
**Crystalbrook	M.R.E.B.
Cucania	C.R.E.B.
Cunnamulla	Paroo Shire Council, Cunnamulla
Cunningham	S.E.A.Q.
*Curra	W.B.–B.R.E.B.
Currajah	C.R.E.B.
Currajong Creek	W.B.–B.R.E.B.
Currumbin	S.E.A.Q.
Currumbin Creek	S.E.A.Q.
Currymore	S.E.A.Q.
Cushnie	W.B.–B.R.E.B.
Cutella	S.E.A.Q.
*Cynthia-Ceratodus	W.B.–B.R.E.B.

D

Locality	Electric Authority
*Daandine	Dalby Town Council Dalby
D'Aguilar	S.E.A.Q.
Dagun	S.E.A.Q.
Daintree	C.R.E.B.
Daisy Hill	S.E.A.Q.
Dakabin	S.E.A.Q.
Dakenba	Cap. R.E.B.
Dakiel	Cap. R.E.B.
Dalbeg	T.R.E.B.
Dalby	Dalby Town Council, Dalby
Dalcouth	S.E.A.Q.
Dallachy	C.R.E.B.
*Dallarnil	W.B.–B.R.E.B.
**Dalrymple Heights	M.R.E.B.
Dalveen	S.E.A.Q.
*Dalwogan	Dalby Town Council, Dalby
Danderoo	S.E.A.Q.
*Dangore	W.B.–B.R.E.B.
*Dappil	W.B.–B.R.E.B.
Daradgee	C.R.E.B.
Darli	W.B.–B.R.E.B.
Darlington	S.E.A.Q.

APPENDIX XVIII—*continued*

LIST OF TOWNS AND LOCALITIES IN QUEENSLAND SUPPLIED WITH ELECTRICITY AS AT 1st JULY, 1972—continued

Locality	Electric Authority
*Darr Creek	Dalby Town Council, Dalby
*Davies Creek	C.R.E.B.
*Dawlish	M.R.E.B.
Dawn	S.E.A.Q.
Dayboro	S.E.A.Q.
*Daymar	Balonne Shire Council, St. George
*Deborah	W.B.–B.R.E.B.
Deception Bay	S.E.A.Q.
Deeford	Cap. R.E.B.
Deep Creek	S.E.A.Q.
Deeragun	T.R.E.B.
Deeral	C.R.E.B.
Degilbo	W.B.–B.R.E.B.
Delta	T.R.E.B.
Derra	W.B.–B.R.E.B.
Derrymore	S.E.A.Q.
Deuchar	S.E.A.Q.
**Devereaux Creek	M.R.E.B.
Devon Park	S.E.A.Q.
*Diamond Valley	S.E.A.Q.
Diddillibah	S.E.A.Q.
Dimbulah	C.R.E.B.
Dingo	Cap. R.E.B.
Dinmore	S.E.A.Q.
*Dirnbir	W.B.–B.R.E.B.
Dirranbandi	Balonne Shire Council, St. George
Dixalea	Cap. R.E.B.
Djarawong	C.R.E.B.
Djuan	S.E.A.Q.
Doctors Creek	S.E.A.Q.
Dohles Rocks	S.E.A.Q.
Donnybrook	S.E.A.Q.
Don River	Cap. R.E.B.
Doolbi	W.B.–B.R.E.B.
Doonan	S.E.A.Q.
Doonan Bridge	S.E.A.Q.
Downsfield	S.E.A.Q.
*Dow's Creek	M.R.E.B.
Draper's Siding	M.R.E.B.
Drayton	S.E.A.Q.
Drillham	Dalby Town Council, Dalby
Drinan	W.B.–B.R.E.B.
Dry Gully	S.E.A.Q.
Duaringa	Cap. R.E.B.
*Ducklo	Dalby Town Council, Dalby
Dugandan	S.E.A.Q.
*Duingal	W.B.–B.R.E.B.
**Dulacca	Dalby Town Council, Dalby
Dulbolla	S.E.A.Q.
Dulong	S.E.A.Q.
Dululu	Cap. R.E.B.
Dumbleton	M.R.E.B.
Dundas	S.E.A.Q.
*Dundathu	W.B.–B.R.E.B.
Dundowran	W.B.–B.R.E.B.
Dundula	M.R.E.B.
*Dundurrah	W.B.–B.R.E.B.
Dunethin Rock	S.E.A.Q.
*Dunrock	M.R.E.B.
Dunwich	S.E.A.Q.
*Dunwold	M.R.E.B.
*Durong South	W.B.–B.R.E.B.

E

Locality	Electric Authority
*Eacham	C.R.E.B.
Eagleby	S.E.A.Q.
**East Barron	C.R.E.B.
East Cambooya	S.E.A.Q.
East Daradgee	C.R.E.B.
East Deep Creek	S.E.A.Q.
**East End	Cap. R.E.B.
East Feluga	C.R.E.B.
*East Funnel Creek	M.R.E.B.
East Greenmount	S.E.A.Q.
East Haldon	S.E.A.Q.
East Innisfail	C.R.E.B.
*East Palmerston	C.R.E.B.
East Silkwood	C.R.E.B.
East Stratford	C.R.E.B.
Eaton's Crossing	S.E.A.Q.
Ebbw Vale	S.E.A.Q.
Ebenezer	S.E.A.Q.
Echo Hills	S.E.A.Q.
Edenvale	W.B.–B.R.E.B.
Edmonton	C.R.E.B.
Eelbogan	S.E.A.Q.
Eel Creek	S.E.A.Q.
Eerwahvale	S.E.A.Q.
Ehlma	Dalby Town Council, Dalby
Eidsvold	W.B.–B.R.E.B.
Eight Miles Plains	S.E.A.Q.
Eimeo	M.R.E.B.
Elanora	S.E.A.Q.
Elaman Creek	S.E.A.Q.
El Arish	C.R.E.B.
*Elaroo	M.R.E.B.
Elbow Valley	S.E.A.Q.
Electra	W.B.–B.R.E.B.
*Elginvale	W.B.–B.R.E.B.
Elimbah	S.E.A.Q.
Ellangowan	S.E.A.Q.
*Ellerbeck	C.R.E.B.
*Ellesmere	W.B.–B.R.E.B.
Ellinthorp	S.E.A.Q.
Elliott	W.B.–B.R.E.B.
Elliott Heads	W.B.–B.R.E.B.
*Elliott River	W.B.–B.R.E.B.
*Ellis Beach	C.R.E.B.
Elphinstone	S.E.A.Q.
Elphinstone Pocket	T.R.E.B.
Elston	S.E.A.Q.
Emerald	Cap. R.E.B.
Emerald Creek	C.R.E.B.
Emu Creek	S.E.A.Q.
Emu Park	Cap. R.E.B.
Emu Vale	S.E.A.Q.
Enterprise	S.E.A.Q.
**Erakala	M.R.E.B.
Esk	S.E.A.Q.
Eskdale	S.E.A.Q.
Etna Creek	Cap. R.E.B.
Eton	M.R.E.B.
Eton North	M.R.E.B.
Eton Vale	S.E.A.Q.
**Etowri	M.R.E.B.
Etty Bay	C.R.E.B.
Eubenangee	C.R.E.B.
Eudlo	S.E.A.Q.
Eudlo Flats	S.E.A.Q.
Eukey	S.E.A.Q.
*Euluma Creek	C.R.E.B.
*Eumamurrin	Roma Town Council, Roma
Eumundi	S.E.A.Q.
Eungella	M.R.E.B.
Eungella Dam	M.R.E.B.
Euramo	C.R.E.B.
Euri Creek	T.R.E.B.
Evanslea	S.E.A.Q.
Evelyn Central	C.R.E.B.
Evergreen	S.E.A.Q.
**Eversleigh	M.R.E.B.
Everton Hills	S.E.A.Q.
Everton Park	S.E.A.Q.

F

Locality	Electric Authority
*Fairdale	W.B.–B.R.E.B.
Fairney View	S.E.A.Q.
Fairy Bower	Cap. R.E.B.
*Fairyland West	Dalby Town Council, Dalby
Fairymead	W.B.–B.R.E.B.
Farleigh	M.R.E.B.
Farnborough	Cap. R.E.B.
*Farnsfield	W.B.–B.R.E.B.
Fassifern	S.E.A.Q.
Felton	S.E.A.Q.
Felton East	S.E.A.Q.
Felton South	S.E.A.Q.
Felton View	S.E.A.Q.
Feluga	C.R.E.B.
Fernlees	Cap. R.E.B.
Ferney Glen	S.E.A.Q.
Fernvale	S.E.A.Q.
Ferny Grove	S.E.A.Q.
Ferny Creek	S.E.A.Q.
*Ferry Hills	W.B.–B.R.E.B.
Fig Tree Creek	C.R.E.B.
Finch Hatton	M.R.E.B.
Finnie	S.E.A.Q.
Fisherman's Pocket	S.E.A.Q.
Fishery Falls	C.R.E.B.
*Flaggy Rock	M.R.E.B.
Flagstone Creek	S.E.A.Q.
Flaxton	S.E.A.Q.
Fletcher	S.E.A.Q.
Fletcher Creek	Cap. R.E.B.
Fleurbaix	S.E.A.Q.
Flinders	S.E.A.Q.
*Flinton	Dalby Town Council, Dalby
Floreat	C.R.E.B.
Floriana	C.R.E.B.
Flying Fish Point	C.R.E.B.
Flying Fox	S.E.A.Q.
Fordsdale	S.E.A.Q.
Forest Glen	S.E.A.Q.
Forest Hill	S.E.A.Q.
Forest Home	T.R.E.B.
Formartin	S.E.A.Q.
Forrest Beach	T.R.E.B.
*Foulden	M.R.E.B
*Four Mile Beach	C.R.E.B.
Foxdale	M.R.E.B.
Franklin Vale	S.E.A.Q.
Fredericksfield	T.R.E.B.
Freestone	S.E.A.Q.
French Creek	S.E.A.Q.
Frenchmans Creek	C.R.E.B.
Frenchton (Minden)	S.E.A.Q.
Freshwater	C.R.E.B.
*Freshwater Elliott	W.B.–B.R.E.B.
Frizzell	S.E.A.Q.
Fulham	S.E.A.Q.
Fulham Vale	S.E.A.Q.
Fumar	C.R.E.B.

G

Locality	Electric Authority
Gailes	S.E.A.Q.
Gainsford	Cap. R.E.B.
Gairloch North	T.R.E.B.
*Gallagowan	W.B.–B.R.E.B.
Gallanani	S.E.A.Q.
Gargett	M.R.E.B.
Garners Beach	C.R.E.B.
Garradunga	C.R.E.B.
Gatton	S.E.A.Q.
Gayndah	W.B.–B.R.E.B.
*Geeberga	M.R.E.B.
Geham	S.E.A.Q.
Gentleman's Seat	S.E.A.Q.
Georgetown	C.R.E.B.
Gheerulla	S.E.A.Q.
*Gibber Gunyah	Cap. R.E.B.
Gilberton	S.E.A.Q.
*Giligulgul	Cap. R.E.B.
Gilla	W.B.–B.R.E.B.
Gilldora	S.E.A.Q.
*Gilliat	T.R.E.B.
*Gillies Siding	C.R.E.B.
Gilston	S.E.A.Q.
Gindie	Cap. R.E.B.
Gin Gin	W.B.–B.R.E.B.
Ginoondan	W.B.–B.R.E.B.
Giru	T.R.E.B.
Givelda (Pine Creek)	W.B.–B.R.E.B.
Gladfield	S.E.A.Q.
Gladstone	Cap. R.E.B.
Glamorgan Vale	S.E.A.Q.
Glasshouse Mts.	S.E.A.Q.
Glastonbury	S.E.A.Q.
*Glen Allyn	C.R.E.B.
Glen Aplin	S.E.A.Q.
Glenapp	S.E.A.Q.
*Glenaubyn	Dalby Town Council, Dalby
Glencairn	S.E.A.Q.
Glencoe	S.E.A.Q.
Gleneagle	S.E.A.Q.
*Glenecho	W.B.–B.R.E.B.
Glen Eden	W.B.–B.R.E.B.
Glenella	M.R.E.B.
Glen Esk	S.E.A.Q.
Glenfern	S.E.A.Q.
Glengallan	S.E.A.Q.
Glen Geddes	Cap. R.E.B.
Glen Haven	S.E.A.Q.
**Glen Isla	M.R.E.B.
*Glenmorgan	Dalby Town Council, Dalby
Glen Niven	S.E.A.Q.
Glenorchy	W.B.–B.R.E.B.
Glenore Grove	S.E.A.Q.
*Glenrae	W.B.–B.R.E.B.
*Glenrock	W.B.–B.R.E.B.
Glenvale	S.E.A.Q.
Glenview	S.E.A.Q.
Glenwood	W.B.–B.R.E.B.
Gogango	Cap. R.E.B.
Golden Beach	S.E.A.Q.
Golden Grove	C.R.E.B.
Gomaren	S.E.A.Q.
Gooburrum	W.B.–B.R.E.B.
Goodger	W.B.–B.R.E.B.
Goodna	S.E.A.Q.
*Goodnight Scrub	W.B.–B.R.E.B.
Goodwood	W.B.–B.R.E.B.
Goodyer	W.B.–B.R.E.B.
Goolara	Cap. R.E.B.
Goolga	Cap. R.E.B.
Goolman	S.E.A.Q.
Goombi	Dalby Town Council, Dalby
Goomboorian	S.E.A.Q.
Goombungee	S.E.A.Q.
Goomburra	S.E.A.Q.
Goomeri	W.B.–B.R.E.B.
*Goomeribong	W.B.–B.R.E.B.
Goomong Pocket	S.E.A.Q.
Goondi	C.R.E.B.
Goondiwindi	North–West County Council, Inverell, New South Wales
Goondoon	W.B.–B.R.E.B.
*Gooray Siding	North-West County Council, Inverell, New South Wales
Gooroolba	W.B.–B.R.E.B.
Gootchie	W.B.–B.R.E.B.
Goothenda	S.E.A.Q.
Goovigen	Cap. R.E.B.
Goowarra Siding	Cap. R.E.B.
*Goranaba	Dalby Town Council, Dalby
*Gordonbrook	W.B.–B.R.E.B.
Gordon's Crossing	S.E.A.Q.
Gordonvale	C.R.E.B
Gotlow	W.B.–B.R.E.B.
Goulds Hill	S.E.A.Q.
Gowrie	S.E.A.Q.
Gowrie Junction	S.E.A.Q.
Gowrie Little Plain	S.E.A.Q.
Gowrie Mountain	S.E.A.Q.
Gracemere	Cap. R.E.B.
Gradule	North–West County Council, Inverell, New South Wales
Graham Range	C.R.E.B.
*Graham's Creek	W.B.–B.R.E.B.
*Granadilla	C.R.E.B
Grandchester	S.E.A.Q.
Grantham	S.E.A.Q.
Grantham Scrub	S.E.A.Q.
Grape Tree	S.E.A.Q.
*Grassdale	Dalby Town Council, Dalby
Grasstree Beach	M.R.E.B.
Grayson	S.E.A.Q.
Greenbank	S.E.A.Q.
Greendale	S.E.A.Q.
Greenhills	S.E.A.Q.
**Green Hills	C.R.E.B.
Greenlands	S.E.A.Q.
Greenmount	S.E.A.Q.
Greenmount	M.R.E.B.
Greenmount West	S.E.A.Q.
Greens Creek	S.E.A.Q.
Greenview	W.B.–B.R.E.B.
Greenwood	S.E.A.Q.
Gregor's Creek	S.E.A.Q.
**Gregory	M.R.E.B.
*Gregory River	W.B.–B.R.E.B.
*Gregory River	M.R.E.B.
Greycliffe	Cap. R.E.B.
Grey Mare	S.E.A.Q.
Grey's Plains	S.E.A.Q.
Grosvenor	W.B.–B.R.E.B.

APPENDIX XVIII—*continued*

LIST OF TOWNS AND LOCALITIES IN QUEENSLAND SUPPLIED WITH ELECTRICITY AS AT 1st JULY, 1972—continued

Locality	Electric Authority
Guanaba	S.E.A.Q.
*Gubbermunda ..	Roma Town Council, Roma
Guluguba	Cap. R.E.B.
Gumlu	T.R.E.B.
Gunalda	W.B.–B.R.E.B.
Gundiah	W.B.–B.R.E.B.
*Gunnewin	Roma Town Council, Roma
*Gunyarra	M.R.E.B.
Gurgeena	W.B.–B.R.E.B.
Guthalungra ..	T.R.E.B.
Gympie	S.E.A.Q.
Gympie Terrace ..	S.E.A.Q.
H	
Habana	M.R.E.B.
Haden	S.E.A.Q.
Haigslea	S.E.A.Q.
Half Tide Beach ..	M.R.E.B.
Halifax	T.R.E.B.
*Halliday Bay ..	M.R.E.B.
Haly Creek	W.B.–B.R.E.B.
Hambledon	C.R.E.B.
Hamilton Creek ..	Cap. R.E.B.
Hamilton Plains ..	M.R.E.B.
*Hampden	M.R.E.B.
Hampstead	S.E.A.Q.
Hampton	S.E.A.Q.
*Hannaford	Dalby Town Council, Dalby
Happy Jack Creek ..	S.E.A.Q.
*Happy Valley ..	C.R.E.B.
Happy Valley ..	Cap. R.E.B.
Harelmar	S.E.A.Q.
Harlaxton	S.E.A.Q.
Harlin	S.E.A.Q.
Harrison's Pocket ..	S.E.A.Q.
Harristown	S.E.A.Q.
Harrisville	S.E.A.Q.
Harvey Creek ..	C.R.E.B.
*Harvey Siding ..	W.B.–B.R.E.B.
*Hatfield	M.R.E.B.
Hatton Vale ..	S.E.A.Q.
Haughton Upper ..	T.R.E.B.
Hawkins Creek ..	T.R.E.B.
*Hawkwood	W.B.–B.R.E.B.
**Hay Point	M.R.E.B.
Haystack	Dalby Town Council, Dalby
Hazelmere	S.E.A.Q.
Hazledean	S.E.A.Q.
Hazlewood	S.E.A.Q.
Headington Hill ..	S.E.A.Q.
*Hebel	Balonne Shire Council, St. George
Helen Siding ..	Cap. R.E.B.
Helens Hill	T.R.E.B.
Helensvale	S.E.A.Q.
*Helenvale	C.R.E.B.
Helidon	S.E.A.Q.
Hendon	S.E.A.Q.
Herberton	C.R.E.B.
Hermitage	S.E.A.Q.
*Hervey's Range ..	T.R.E.B.
Hewitt	C.R.E.B.
Highfields	S.E.A.Q.
Highgrove	S.E.A.Q.
Highland Plains ..	S.E.A.Q.
**Highleigh	C.R.E.B.
Highvale	S.E.A.Q.
Highworth	S.E.A.Q.
*Hillcrest	C.R.E.B.
Hillview	S.E.A.Q.
Hirstglen	S.E.A.Q.
Hivesville	W.B.–B.R.E.B.
Hodel	T.R.E.B.
Hodgleigh	W.B.–B.R.E.B.
Hodgson	Roma Town Council, Roma
Hodgson Vale ..	S.E.A.Q.
Holloway's Beach ..	C.R.E.B.
Hollywell	W.B.–B.R.E.B.
Holmes	S.E.A.Q.
Holmview	S.E.A.Q.
Homebush	M.R.E.B.
Homebush Road ..	M.R.E.B.
Home Hill	T.R.E.B.
**Homestead	T.R.E.B.
Hope Island ..	S.E.A.Q.
*Hopeland	Dalby Town Council, Dalby
Hornley	W.B.–B.R.E.B.
Horrane	S.E.A.Q.
Horrigan Creek ..	Cap. R.E.B.
Horseshoe Bay ..	T.R.E.B.
*Horseshoe Bend ..	C.R.E.B.
Horton	W.B.–B.R.E.B.
Hotham Creek ..	S.E.A.Q.
Howard	W.B.–B.R.E.B.
Howells Kob ..	S.E.A.Q.
Hoya	S.E.A.Q.
Hughenden	T.R.E.B.
Hull Heads	C.R.E.B.
Hummock	W.B.–B.R.E.B.
Humphery	W.B.–B.R.E.B.
Hunchy	S.E.A.Q.
Hurdle Gully ..	Cap. R.E.B.
Hut Creek	Cap. R.E.B.
*Hutton	Roma Town Council, Roma
Huxley	W.B.–B.R.E.B.
I	
Ideraway	W.B.–B.R.E.B.
*Ilbilbie	M.R.E.B.
Ilfracombe	C.W.R.E.B.
Ilkley	S.E.A.Q.
Image Flat	S.E.A.Q.
Imbil	S.E.A.Q.
Inarlinga	C.R.E.B.
Ingham	T.R.E.B.
Ingleside	S.E.A.Q.
*Inglestone	Dalby Town Council, Dalby
Inglewood	North-West County Council, Inverell, New South Wales
Ingoldsby	S.E.A.Q.
Injune	Roma Town Council, Roma
Inkerman	T.R.E.B.
Innes	W.B.–B.R.E.B.
*Inneston	M.R.E.B.
Innot Hot Springs ..	C.R.E.B.
Innisfail	C.R.E.B.
Innisplain	S.E.A.Q.
Inverdon	T.R.E.B.
Inverlaw	W.B.–B.R.E.B.
Inveroona	T.R.E.B.
Inverramsay ..	S.E.A.Q.
Iona	T.R.E.B.
Ipswich	S.E.A.Q.
Iredale	S.E.A.Q.
Irongate	S.E.A.Q.
*Ironpot	W.B.–B.R.E.B.
Ironstone Creek ..	S.E.A.Q.
Irvinebank	C.R.E.B.
*Irvingdale	Dalby Town Council, Dalby
Isis Central	W.B.–B.R.E.B.
Isisford	C.W.R.E.B.
Island Plantation ..	W.B.–B.R.E.B.
Ivory Creek	S.E.A.Q.
Iyah	T.R.E.B.
J	
Jackass Creek ..	S.E.A.Q.
*Jackson	Dalby Town Council, Dalby
Jacob's Well	S.E.A.Q.
Jaffa	C.R.E.B.
**Jaggan	C.R.E.B.
Jambin	Cap. R.E.B.
Jandowae	Dalby Town Council, Dalby
*Jandowae East ..	Dalby Town Council, Dalby
Japoon	C.R.E.B.
Japoonvale	C.R.E.B.
*Jardine Valley ..	T.R.E.B.
*Jarial Creek ..	W.B.–B.R.E.B.
Jarvisfield	T.R.E.B.
Jericho	C.W.R.E.B.
Jilalan	M.R.E.B.
Jimboomba	S.E.A.Q.
Jimbour	Dalby Town Council, Dalby
†Jimna	Conservator of Forests
Jingarry	S.E.A.Q.
*Jinghi Valley ..	Dalby Town Council, Dalby
Johnstown	W.B.–B.R.E.B.
Jondaryan	S.E.A.Q.
Jones' Gully ..	S.E.A.Q.
Jones Hill	S.E.A.Q.
Josephville	S.E.A.Q.
*Jubilee Pocket ..	M.R.E.B.
Jubilee Vale	S.E.A.Q.
**Julatten	C.R.E.B.
Julia Creek	T.R.E.B.
Jumna Creek ..	C.R.E.B.
Junabee	S.E.A.Q.
Junction View ..	S.E.A.Q.
Jundah	Barcoo Shire Council, Jundah
Jungara	C.R.E.B.
K	
Kaban	C.R.E.B.
Kabra	Cap. R.E.B.
*Kadina	W.B.–B.R.E.B.
Kagaru	S.E.A.Q.
Kaimkillenbun ..	Dalby Town Council, Dalby
Kairi	C.R.E.B.
Kajarabie	Balonne Shire Council, St. George
Kalamia	T.R.E.B.
**Kalapa	Cap. R.E.B.
Kalbar	S.E.A.Q.
Kalkie	W.B.–B.R.E.B.
Kallangur	S.E.A.Q.
Kalpowar	Cap. R.E.B.
Kalunga	C.R.E.B.
Kamerunga	C.R.E.B.
Kamma	C.R.E.B.
*Kamo	M.R.E.B.
Kandanga	S.E.A.Q.
Kandanga Creek ..	S.E.A.Q.
Kandanga Upper ..	S.E.A.Q.
Kanighan	W.B.–B.R.E.B.
Kanyan	W.B.–B.R.E.B.
Kapaldo	Cap. R.E.B.
Karcaruda	S.E.A.Q.
Kariboe Creek ..	Cap. R.E.B.
Karrabin	S.E.A.Q.
*Karrental	M.R.E.B.
†Karumba	Craig Mostyn & Co. Pty. Ltd.
Kawana Island ..	S.E.A.Q.
*Kawl-Kawl	W.B.–B.R.E.B.
Kawungan	W.B.–B.R.E.B.
Keebah	T.R.E.B.
Keefton	S.E.A.Q.
*Kelley's Creek ..	W.B.–B.R.E.B.
*Kelsey Creek ..	M.R.E.B.
Kelvinhaugh ..	S.E.A.Q.
Kenilworth	S.E.A.Q.
Kenilworth Lower ..	S.E.A.Q.
Kennedy	C.R.E.B.
*Kennedy Creek ..	C.R.E.B.
Kent's Lagoon ..	S.E.A.Q.
Kentville	S.E.A.Q.
Keppel Sands ..	Cap. R.E.B.
Kerry	S.E.A.Q.
Keysland	W.B.–B.R.E.B.
Kiamba	S.E.A.Q.
Kianga	Cap. R.E.B.
Kia Ora	S.E.A.Q.
Kidamann Creek ..	S.E.A.Q.
Kidmond Creek ..	S.E.A.Q.
Kiels Mountain ..	S.E.A.Q.
Kilbirnie	S.E.A.Q.
Kilcoy	S.E.A.Q.
Kilcoy Creek ..	S.E.A.Q.
Kilkivan	W.B.–B.R.E.B.
Killarney	S.E.A.Q.
Kinbombi	W.B.–B.R.E.B.
Kincora	S.E.A.Q.
Kingaroy	W.B.–B.R.E.B.
Kingin	W.B.–B.R.E.B.
Kings Creek ..	S.E.A.Q.
Kings Scrub ..	S.E.A.Q.
Kingsthorpe ..	S.E.A.Q.
Kingston	S.E.A.Q.
Kingston Park ..	S.E.A.Q.
Kinka	Cap. R.E.B.
*Kinkabilla	Dalby Town Council, Dalby
Kin Kin	S.E.A.Q.
Kinleymore	W.B.–B.R.E.B.
Kinmond Creek ..	S.E.A.Q.
Kirkhall	Cap. R.E.B.
Kital	S.E.A.Q.
Kitoba	W.B.–B.R.E.B.
Kleinton	S.E.A.Q.
Knapp Creek ..	S.E.A.Q.
Koah	C.R.E.B.
Kobble Creek ..	S.E.A.Q.
Kogan	Dalby Town Council, Dalby
Kolijo	M.R.E.B.
*Komine	Roma Town Council, Roma
Kooingal	Cap. R.E.B.
Koolboo	W.B.–B.R.E.B.
Koolkuna	T.R.E.B.
*Koombal	C.R.E.B.
Koombooloomba ..	Northern Electric Authority of Queensland, Townsville
Koondaii	Dalby Town Council, Dalby
*Koonkool	Cap. R.E.B.
Kooralbin	S.E.A.Q.
Kooralgin	W.B.–B.R.E.B.
*Koorboora	C.R.E.B.
Kooringa	W.B.–B.R.E.B.
Koumala	M.R.E.B.
*Koumala South ..	M.R.E.B.
*Kowari	M.R.E.B.
Kowbi	W.B.–B.R.E.B.
*Kowguren	Dalby Town Council, Dalby
*Kowrowa	C.R.E.B.
Kudo	S.E.A.Q.
Kulangoor	S.E.A.Q.
*Kulara	C.R.E.B.
Kulgun	S.E.A.Q.
Kullee	S.E.A.Q.
Kulpi	S.E.A.Q.
*Kumbarilla	Dalby Town Council, Dalby
Kumbia	W.B.–B.R.E.B.
Kunda	S.E.A.Q.
Kungurri	M.R.E.B.
Kunioon	W.B.–B.R.E.B.
Kunkala	S.E.A.Q.
Kunwarara	Cap. R.E.B.
*Kupunn	Dalby Town Council, Dalby
Kuranda	C.R.E.B.
**Kureen	C.R.E.B.
Kureelpa	S.E.A.Q.
Kurrimine	C.R.E.B.
*Kurumbul	North-West County Council, Inverell, New South Wales
Kuttabul	M.R.E.B.
Kuyura	Dalby Town Council, Dalby
Kybong	S.E.A.Q.
L	
Lacey's Creek ..	S.E.A.Q.
Lacon	W.B.–B.R.E.B.
Ladybrook	S.E.A.Q.
Lagoon Pocket ..	S.E.A.Q.
Laidley	S.E.A.Q.
Laidley South ..	S.E.A.Q.
Lake Clarendon ..	S.E.A.Q.

APPENDIX XVIII—*continued*

LIST OF TOWNS AND LOCALITIES IN QUEENSLAND SUPPLIED WITH ELECTRICITY AS AT 1st JULY, 1972—continued

Locality	Electric Authority
Lake Manchester	S.E.A.Q.
*Lakeside	W.B.–B.R.E.B.
Lallewoon	W.B.–B.R.E.B.
Lamington	S.E.A.Q.
Lamington National Park	S.E.A.Q.
Landers Shoot	S.E.A.Q.
Landsborough	S.E.A.Q.
Lanefield	S.E.A.Q.
Lanewood	S.E.A.Q.
Langdale Hill	Cap. R.E.B.
*Langdon	M.R.E.B.
Langley	Cap. R.E.B.
Langley Flats	Cap. R.E.B.
Langshaw	S.E.A.Q.
Lannercost	T.R.E.B.
Lansdowne	M.R.E.B.
*Lappa Junction	C.R.E.B.
Laravale	S.E.A.Q.
Lawes	S.E.A.Q.
Lawgi	Cap. R.E.B.
Lawnton	S.E.A.Q.
Lawnville	S.E.A.Q.
Leafgold	C.R.E.B.
Left Hand Branch	S.E.A.Q.
Leichhardt	S.E.A.Q.
Lemonside	C.R.E.B.
Leslie	S.E.A.Q.
Leslie Bridge	S.E.A.Q.
Leslie Dam Township	S.E.A.Q.
**Lethebrook	M.R.E.B.
Lever Estate	C.R.E.B.
Leyburn	S.E.A.Q.
Lilydale	S.E.A.Q.
Lily Pond	T.R.E.B.
Limestone Creek	Cap. R.E.B.
Limestone Ridges	S.E.A.Q.
Linthorpe	S.E.A.Q.
Linville	S.E.A.Q.
Littlemore	Cap. R.E.B.
Little Mountain	S.E.A.Q.
Little Yabba	S.E.A.Q.
Liverpool Creek	C.R.E.B.
Loamside	S.E.A.Q.
Lock Lomond	S.E.A.Q.
Lockrose	S.E.A.Q.
Lockyer	S.E.A.Q.
Loganholme	S.E.A.Q.
Loganlea	S.E.A.Q.
Logan Reserve	S.E.A.Q.
Logan Village	S.E.A.Q.
*Loloma	M.R.E.B.
Long Flat	S.E.A.Q.
*Longford Creek	T.R.E.B.
Long Gully	S.E.A.Q.
Long Pocket	T.R.E.B.
Longreach	C.W.R.E.B.
Loudoun	Dalby Town Council, Dalby
*Louisa Creek	M.R.E.B.
Lower Beechmont	S.E.A.Q.
Lower Cressbrook	S.E.A.Q.
*Lower Gregory	M.R.E.B.
Lower Mount Walker	S.E.A.Q.
Lower Tully	C.R.E.B.
Lower Wonga	W.B.–B.R.E.B.
Lowood	S.E.A.Q.
Lucinda	T.R.E.B.
*Lumburra	M.R.E.B.
Luscombe	S.E.A.Q.
Lynford	S.E.A.Q.
Lynwood	W.B.–B.R.E.B.

M

Locality	Electric Authority
Maadi	C.R.E.B.
*Maalan	C.R.E.B.
*Maaroom	W.B.–B.R.E.B.
Mabel Park	S.E.A.Q.
**Macalister	Dalby Town Council, Dalby
Macdesme	T.R.E.B.
Machan's Beach	C.R.E.B.
Machine Creek	Cap. R.E.B.
Mackay	M.R.E.B.
Macknade	T.R.E.B.
Maclagan	S.E.A.Q.
MacLagan North	S.E.A.Q.
Maclean	S.E.A.Q.
Magnetic Island	T.R.E.B.
Magnolia	W.B.–B.R.E.B.
Maidavale	T.R.E.B.
*Maidenwell	W.B.–B.R.E.B.
Main Camp Creek	S.E.A.Q.
Majors Creek	T.R.E.B.
**Majuba Hill	M.R.E.B.
Malabar	S.E.A.Q.
Malanda	C.R.E.B.
*Malar	W.B.–B.R.E.B.
Malchi	Cap. R.E.B.
Maleny	S.E.A.Q.
*Mallawa	M.R.E.B.
Malling	S.E.A.Q.
Malmoe	W.B.–B.R.E.B.
Malu	S.E.A.Q.
Ma Ma Creek	S.E.A.Q.
Manapouri	S.E.A.Q.
Manneum Creek	W.B.–B.R.E.B.
Manoo	W.B.–B.R.E.B.
Manton	T.R.E.B.
*Manumbar	W.B.–B.R.E.B.
Many Peaks	Cap. R.E.B.
Manyung	W.B.–B.R.E.B.
*Mapee	C.R.E.B.
Mapleton	S.E.A.Q.
Marburg	S.E.A.Q.
Marburg Range	S.E.A.Q.
Marcoola Beach	S.E.A.Q.
Marcus Beach	S.E.A.Q.
Mardale	Cap. R.E.B.
Mareeba	C.R.E.B.
Marian	M.R.E.B.
Marlborough	Cap. R.E.B.
Marmor	Cap. R.E.B.
Marnhull	Dalby Town Council, Dalby
Maroochydore	S.E.A.Q.
Maroochy River	S.E.A.Q.
Maroon	S.E.A.Q.
Maroondan	W.B.–B.R.E.B.
Marshlands	W.B.–B.R.E.B.
Martyville	C.R.E.B.
*Marwood	M.R.E.B.
Maryborough	W.B.–B.R.E.B.
Maryfarms	C.R.E.B
Mary Kathleen	North-West Electric Authority, Mount Isa
*Mary River Heads	W.B.–B.R.E.B.
Marys Creek	S.E.A.Q
Maryvale	S.E.A.Q.
Massie	S.E.A.Q.
Maudsland	S.E.A.Q.
*Maxwelton	T.R.E.B.
McDonnell's Creek	C.R.E.B.
McEuen	W.B.–B.R.E.B.
*McEwans Beach	M.R.E.B.
McGrath's Crossing	S.E.A.Q.
*McIlwraith	W.B.–B.R.E.B.
McIntosh Creek	S.E.A.Q.
McKinlay	T.R.E.B.
**Meadowlands	M.R.E.B.
Meadowvale	W.B.–B.R.E B.
**Meandarra	Dalby Town Council, Dalby
Meerawa	C.R.E.B.
Melrose Crossing	S.E.A.Q.
Memerambi	W.B.–B.R.E.B.
**Mena Creek	C.R.E.B.
Meridan Plains	S.E.A.Q.
Merimal	Cap. R.E.B.
Merinda	T.R.E.B.
Meringa	C.R.E.B.
Meringandan	S.E.A.Q.
Mermaid Beach	S.E.A.Q.
*Merlwood	W.B.–B.R.E.B.
Merrimac	S.E.A.Q.
Merritt's Creek	S.E.A.Q.
Messines	S.E.A.Q.
Miallo	C.R.E.B.
**Mia Mia	M.R.E.B.
*Miara	W.B.–B.R.E.B.
**Miaview	M.R.E.B.
Miclere	M.R.E.B.
*Middlebrook	C.R.E.B.
*Middle Creek	M.R.E.B.
Middle Creek	S.E.A.Q.
Middle Ridge	S.E.A.Q.
Midgee	Cap. R.E.B.
Midgenoo	C.R.E.B.
*Midge Point	M.R.E.B.
*Mikoolu	M.R.E.B.
Milbong	S.E.A.Q.
**Miles	Dalby Town Council, Dalby
Milford	S.E.A.Q.
Millaa Millaa	C.R.E.B.
Millaroo	T.R.E.B.
*Millbank	W.B.–B.R.E.B.
Millgowan	S.E.A.Q.
Millmerran	S.E.A.Q.
Milman	Cap. R.E.B.
Milora	S.E.A.Q.
*Minbun	C.R.E.B.
Minden	S.E.A.Q.
*Mindi	M.R.E.B.
Minehan	T.R.E.B.
*Mingela	T.R.E.B.
*Mingo	W.B.–B.R.E.B.
Mirani	M.R.E.B.
Miriam Vale	Cap. R.E.B.
Miriwinni	C.R.E.B.
Mirrigan	T.R.E.B.
Missen's Flat	S.E.A.Q.
Mission Beach	C.R.E.B.
Mitchell	Roma Town Council Roma
Miva	W.B.–B.R.E.B.
Moffatdale	W.B.–B.R.E.B.
Monal Creek	Cap. R.E.B.
Mondam	S.E.A.Q.
*Monduran	W.B.–B.R.E.B.
Monduran Dam	W.B.–B.R.E.B.
Mondure	W.B.–B.R.E.B.
Monkland	S.E.A.Q.
Mons	S.E.A.Q.
Monto	Cap. R.E.B.
Monsildale Creek	S.E.A.Q.
Montrose	S.E.A.Q.
Montville	S.E.A.Q.
Moodlu	S.E.A.Q.
Moogerah Dam	S.E.A.Q.
Moola	Dalby Town Council, Dalby
Mooloo	S.E.A.Q.
Mooloolaba	S.E.A.Q.
Mooloolah	S.E.A.Q.
Moombra	S.E.A.Q.
Moondooner	W.B.–B.R.E.B.
Moonford	Cap. R.E.B.
Moongan	Cap. R.E.B.
*Moonie Village	North-West County Council, Inverell, New South Wales
Moonmera	Cap. R.E.B.
Moorang	S.E.A.Q.
Moore	S.E.A.Q.
Moore Park	W.B.–B.R.E.B.
Moorina	S.E.A.Q.
*Moorlands	W.B.–B.R.E.B.
Mopo	C.R.E.B.
Moranbah	M.R.E.B.
Moran Group	S.E.A.Q.
Morayfield	S.E.A.Q.
*Moregatta	C.R.E.B.
*Morella	C.W.R.E.B.
Moresby	C.R.E.B.
Morgan Park	S.E.A.Q.
*Morganville	W.B.–B.R.E.B.
Morton Vale	S.E.A.Q.
Morven	Murweh Shire Council, Charleville
Morwincha	S.E.A.Q.
*Mosquito Creek	North-West County Council, Inverell, New South Wales
Mossman	C.R.E B.
Mothar Mountain	S.E.A.Q.
Motley	S.E.A.Q.
Mouingba	W.B.-B.R.E.B.
Mount Abbot	C.R.E.B.
*Mount Abundance	Roma Town Council, Roma
Mountain Camp	S.E.A.Q.
Mountain View	T.R.E.B.
Mount Alford	S.E.A.Q.
Mount Beppo	S.E.A.Q.
Mount Berryman	S.E.A.Q.
Mount Binga	W.B.–B.R.E.B.
Mount Blackwood	M.R.E.B.
Mount Brian	W.B.–B.R.E.B.
Mount Brisbane	S.E.A.Q.
Mount Campbell	S.E.A.Q.
Mount Carbine	C.R.E.B.
Mount Charlton	M.R.E.B.
*Mount Christian	M.R.E.B.
Mount Colliery	S.E.A.Q.
*Mount Convenient	M.R.E.B.
Mount Cotton	S.E.A.Q.
Mount Cotton West	S.E.A.Q.
Mount Crosby	S.E.A.Q.
Mount Dangar	T.R.E.B.
Mount Darry	S.E.A.Q.
Mount Esk Pocket	S.E.A.Q.
Mount Etna	Cap. R.E.B.
Mount Forbes	S.E.A.Q.
Mount Garnet	C.R.E.B.
Mount Gipps	S.E.A.Q.
Mount Glorious	S.E.A.Q.
Mount Goonaneman	W.B.–B.R.E.B.
Mount Hopeful	Cap. R.E.B.
Mount Irving	S.E.A.Q.
Mount Isa	North-Western Electric Authority, Mt. Isa
*Mount Jukes	M.R.E.B.
Mount Julian	M.R.E.B.
Mount Kelly	Cap. R.E.B.
Mount Kent	S.E.A.Q.
Mount Kilcoy	S.E.A.Q.
Mount Kynoch	S.E.A.Q.
Mount Larcom	Cap. R.E.B.
Mount Lawless	W.B.–B.R.E.B.
Mount Luke	S.E.A.Q.
Mount Ma Ma	S.E.A.Q.
*Mount Marcella	W.B.–B.R.E.B.
Mount Maria	S.E.A.Q.
*Mount Marlow	M.R.E.B.
Mount Marrow	S.E.A.Q.
Mount Marshall	S.E.A.Q.
*Mount Martin	M.R.E.B.
Mount Maurice	Cap. R.E.B.
Mount McEuen	W.B.–B.R.E.B.
Mount Mee	S.E.A.Q.
*Mount Mehan	W.B.–B.R.E.B.
Mount Mellum	S.E.A.Q.
Mount Molloy	C.R.E.B.
Mount Morgan	Cap. R.E.B.
Mount Mort	S.E.A.Q.
Mount Mowbullan	Dalby Town Council, Dalby
*Mount Murchison	Cap. R.E.B.
Mount Nebo	S.E.A.Q.
*Mount Ossa	M.R.E.B.
*Mount Pelion	M.R.E.B.
*Mount Percy Hindmarsh	Cap. R.E.B.
Mount Perry	W.B.–B.R.E.B.
Mount Pleasant	S.E.A.Q.
Mount Samson	S.E.A.Q.
Mount Scoria	Cap. R.E.B.
Mount Sibley	S.E.A.Q.
Mount Sophia	C.R.E.B.
Mount Stanley	S.E.A.Q.
Mount Sturt	S.E.A.Q.
Mount Sylvia	S.E.A.Q.
Mount Tamborine	S.E.A.Q.
Mount Tarampa	S.E.A.Q.
Mount Thabor	S.E.A.Q.
Mount Tully	S.E.A.Q.
Mount Tyson	S.E.A.Q.
*Mount Vince	M.R.E.B.
Mount Walker	S.E.A.Q.
Mount Whitestone	S.E.A.Q.
Moura	Cap. R.E.B.
Mourilyan	C.R.E.B.
Mourilyan Harbour	C.R.E.B.
Mowbray	C.R.E.B.
Mowbullan	Dalby Town Council, Dalby
Moy Pocket	S.E.A.Q.
Muckadilla	Roma Town Council, Roma
Mudgeeraba	S.E.A.Q.
Mudjimba	S.E.A.Q.
*Muggleton	Roma Town Council, Roma
Muirlea	S.E.A.Q.
Muldu	S.E.A.Q.
*Mulei	M.R.E.B.
Mulgildie	Cap. R.E.B.
Mulgildie Plateau	Cap. R.E.B.
Mulgowie	S.E.A.Q.
Mulgrave	C.R.E.B.
Mullins Creek	S.E.A.Q.
*Munbura	M.R.E.B.

APPENDIX XVIII—*continued*

LIST OF TOWNS AND LOCALITIES IN QUEENSLAND SUPPLIED WITH ELECTRICITY AS AT 1st JULY, 1972—continued

Locality	Electric Authority
Mundoo	C.R.E.B.
Mundoolun	S.E.A.Q.
Mundowran	W.B.–B.R.E.B.
Mundubbera	W.B.–B.R.E.B.
*Mungallala	Roma Town Council, Roma
Mungar	W.B.–B.R.E.B.
Mungungo	Cap. R.E.B.
Muniganeen	S.E.A.Q.
*Munna Creek	W.B.–B.R.E.B.
Muntapa	S.E.A.Q.
Murgon	W.B.–B.R.E.B.
Murlaggan	S.E.A.Q.
Murra Murra	S.E.A.Q.
Murrays Bridge	S.E.A.Q.
**Murray Upper	C.R.E.B.
Murroona	T.R.E.B.
Murrumba	S.E.A.Q.
Murphy's Creek	S.E.A.Q.
Mutarnee	T.R.E.B.
Mutchilba	C.R.E.B.
Mutdapilly	S.E.A.Q.
Muttaburra	C.W.R.E.B.
Myola	C.R.E.B.
Myora	S.E.A.Q.
*Myrtle Creek	M.R.E.B.
Mywybilla	S.E.A.Q.

N

**Nabilla	M.R.E.B.
Nagoorin	Cap. R.E.B.
Nambour	S.E.A.Q.
Namyima	M.R.E.B.
Nanango	W.B.–B.R.E.B.
Nandi	Dalby Town Council, Dalby
Nandroya	S.E.A.Q.
Nangwee	S.E.A.Q.
Nankin	Cap. R.E.B.
Nanya Siding	Cap. R.E.B.
Nara	S.E.A.Q.
Narangba	S.E.A.Q.
*Narayen	W.B.–B.R.E.B.
Narko	S.E.A.Q.
Narkunda	S.E.A.Q.
*Narpi	M.R.E.B.
Nashville	S.E.A.Q.
Nebia	M.R.E.B.
Nebo	M.R.E.B.
Neerdie	S.E.A.Q.
Neerkol	Cap. R.E.B.
**Neilsen's Creek	M.R.E.B.
Neilson Park	W.B.–B.R.E.B.
*Nelia	T.R.E.B.
Nelly Bay	T.R.E.B.
*Nerada	C.R.E.B.
Nerang	S.E.A.Q.
Neranwood	S.E.A.Q.
Nerimbera	Cap. R.E.B.
Netherby	W.B.–B.R.E.B.
Netherdale	M.R.E.B.
Neurum	S.E.A.Q.
Neurum Creek	S.E.A.Q.
Neusavale	S.E.A.Q.
Neuve	S.E.A.Q.
Nevilton	S.E.A.Q.
New Beith	S.E.A.Q.
*Newbury Junction	M.R.E.B.
New Chum	S.E.A.Q.
Newell	C.R.E.B.
New Veteran	S.E.A.Q.
New Year Creek	S.E.A.Q.
Neylans	S.E.A.Q.
Ngungun	S.E.A.Q.
Nikenbah	W.B.–B.R.E.B.
**Nindaroo	M.R.E.B.
*Nindi Gully	Balonne Shire Council, St. George
Nindooinbah	S.E.A.Q.
Nindooinbah Estate	S.E.A.Q.
Nobby	S.E.A.Q.
Nome	T.R.E.B.
*Nonda	T.R.E.B.
Noola	Dalby Town Council, Dalby
*Noondoo	Balonne Shire Council, St. George
*Noonga	Dalby Town Council, Dalby
*Noorlah	M.R.E.B.
Noosa	S.E.A.Q.
Noosaville	S.E.A.Q.
Norilee	S.E.A.Q.
Normanton	C.R.E.B.
*North Aramara	W.B.–B.R.E.B.
North Arm	S.E.A.Q.
North Beechmont	S.E.A.Q.
North Booie	W.B.–B.R.E.B.
Northbrook	S.E.A.Q.
North Burleigh	S.E.A.Q.
North Cooloola	S.E.A.Q.
*North Dulacca	Dalby Town Council, Dalby
North Eton	M.R.E.B.
North Isis	W.B.–B.R.E.B.
North Kalkie	W.B.–B.R.E.B.
North Kolan	W.B.–B.R.E.B.
North Mackay	M.R.E.B.
North McLagan	S.E.A.Q.
North Mossman	C.R.E.B.
North Pine	S.E.A.Q.
Norville	W.B.–B.R.E.B.
Norwell	S.E.A.Q.
Norwin	S.E.A.Q.
Nukinenda	S.E.A.Q.
Nukku	W.B.–B.R.E.B.
Numinbah	S.E.A.Q.
Nunkulla	S.E.A.Q.
Nutgrove	W.B.–B.R.E.B.
Nyleta	C.R.E.B.

O

*Oak Beach	C.R.E.B.
**Oakenden	M.R.E.B.
Oakey	S.E.A.Q.
Oakey Creek (Beaudesert Shire)	S.E.A.Q.
*Oakfield	W.B.–B.R.E.B.
*Oak Forest	C.R.E.B.
Oakhurst	W.B.–B.R.E.B.
*Oak-Park	Dalby Town Council, Dalby
Oakview	W.B.–B.R.E.B.
Oakwood	W.B.–B.R.E.B.
O'Bil Bil	W.B.–B.R.E.B.
Obi Obi	S.E.A.Q.
Obum Obum	S.E.A.Q.
Ocean View	S.E.A.Q.
**O'Connell River	M.R.E.B.
Ogmore	Cap. R.E.B.
**Okuloo	M.R.E.B.
*Omanama	North-West County Council, Inverell, New South Wales
O'Mara's Bridge	S.E.A.Q.
Ooralea	M.R.E.B.
*Orallo	Roma Town Council, Roma
O'Reilly's Guest House	S.E.A.Q.
O'Reilly's Weir	S.E.A.Q.
Orion	Cap. R.E.B.
*Orkabie	M.R.E.B.
Ormeau	S.E.A.Q.
Ormiston	S.E.A.Q.
Osborne	T.R.E.B.
Otterburn	M.R.E.B.
Outer Harbour	M.R.E.B.
Owanyilla	W.B.–B.R.E.B.
*Owen's Creek	M.R.E.B.
Oxenford	S.E.A.Q.
Oyster Point	S.E.A.Q.

P

Pacific Paradise	S.E.A.Q.
*Packers Camp	C.R.E.B.
Paddys Green	C.R.E.B.
Paddy's Gully	S.E.A.Q.
Palen Creek	S.E.A.Q.
Pallarenda	T.R.E.B.
Palma	C.R.E.B.
Palm Beach	S.E.A.Q.
Palm Cove	C.R.E.B.
Palm Creek	T.R.E.B.
Palm's Siding	M.R.E.B.
Palm Tree	S.E.A.Q.
Palm View	S.E.A.Q.
Palmwoods	S.E.A.Q.
**Palmyra	M.R.E.B.
*Paluma	T.R.E.B.
Pampas	S.E.A.Q.
Pandoin	Cap. R.E.B.
Parada	C.R.E.B.
Paradise Point	S.E.A.Q.
*Parapi	M.R.E.B.
Paree	S.E.A.Q.
Parkhurst	Cap. R.E.B.
Parklands	S.E.A.Q.
Park Ridge	S.E.A.Q.
Parson's Knob	S.E.A.Q.
Passchendaele	S.E.A.Q.
Patrick Estate	S.E.A.Q.
Patterson	W.B.–B.R.E.B.
Pawngilly	C.R.E.B.
Paynters Creek	S.E.A.Q.
Peachester	S.E.A.Q.
Peak Crossing	S.E.A.Q.
Pechey	S.E.A.Q.
Peeramon	C.R.E.B.
*Pelican	Dalby Town Council, Dalby
Pellican Creek	T.R.E.B.
Pengarry	S.E.A.Q.
Pentland	T.R.E.B.
Peranga	S.E.A.Q.
Peregian	S.E.A.Q.
Perry's Knob	S.E.A.Q.
Perserverance	S.E.A.Q.
Perserverance Dam	S.E.A.Q.
Perwillowen	S.E.A.Q.
Petford	C.R.E.B.
Petrie	S.E.A.Q.
Petrie Creek	S.E.A.Q.
Phillipi Town	W.B.–B.R.E.B.
*Philpott Creek	W.B.–B.R.E.B.
Pialba	W.B.–B.R.E.B.
Picnic Bay	T.R.E.B.
Pie Creek	S.E.A.Q.
Pierce Creek	S.E.A.Q.
Pilton	S.E.A.Q.
Pimpama	S.E.A.Q.
Pimpama Island	S.E.A.Q.
*Pimpimbudgee	W.B.–B.R.E.B.
Pin Creek	W.B.–B.R.E.B.
Pinbarren	S.E.A.Q.
**Pindi Pindi	M.R.E.B.
Pine Creek	S.E.A.Q.
Pinelands	S.E.A.Q.
Pine Mountains	S.E.A.Q.
Pin Gin Hill	C.R.E.B.
Pinklands	S.E.A.Q.
Pink Lily	Cap. R.E.B.
Pinnacle	M.R.E.B.
Pioneer Estate	T.R.E.B.
Pirrinuan	Dalby Town Council, Dalby
Pittsworth	S.E.A.Q.
Plainby	S.E.A.Q.
Plainlands	S.E.A.Q.
Plain View	S.E.A.Q.
Plane Creek	M.R.E.B.
Pleystowe	M.R.E.B.
Plunkett	S.E.A.Q.
Point Arkwright	S.E.A.Q.
Point Lookout	S.E.A.Q.
Point Lookout West	S.E.A.Q.
Police Creek	Cap. R.E.B.
Pomona	S.E.A.Q.
Porlock	S.E.A.Q.
Port Alma	Cap. R.E.B.
Port Douglas	C.R.E.B.
*Porter's Beach	C.R.E.B.
Postmans Ridge	S.E.A.Q.
Pozieres	S.E.A.Q.
*Prairie	T.R.E.B.
Pratten	S.E.A.Q.
Prenzlau	S.E.A.Q.
Preston	M.R.E.B.
Preston	S.E.A.Q.
Princhester	Cap. R.E.B.
*Promised Land	W.B.–B.R.E.B.
Proserpine	M.R.E.B.
Prospect Creek	Cap. R.E.B.
Proston	W.B.–B.R.E.B.
*Prowle	W.B.–B.R.E.B.
Purga	S.E.A.Q.
Purrawunda	S.E.A.Q.
Pyramid	C.R.E.B.

Q

Quatia	C.R.E.B.
Queen's Beach	T.R.E.B.
Queerah	C.R.E.B.
Quilpie	Quilpie Shire Council, Quilpie
Quinalow	S.E.A.Q.
Quingilly	C.R.E.B.
Qunaba	W.B.–B.R.E.B.
Qunaba Estate	C.R.E.B.

R

Raby Bay	S.E.A.Q.
Racecourse	M.R.E.B.
Raceview	S.E.A.Q.
Racing Plains	S.E.A.Q.
Radford	S.E.A.Q.
Raglan	Cap. R.E.B.
Rainbow Beach	S.E.A.Q.
Ramleh	C.R.E.B.
Ramsay	S.E.A.Q.
*Ranges Bridge	Dalby Town Council, Dalby
Rathdowney	S.E.A.Q.
Ravensbourne	S.E.A.Q.
Ravenshoe	C.R.E.B.
*Ravenswood	T.R.E.B.
Redbank	S.E.A.Q.
Redbank Creek	S.E.A.Q.
Redbank Plains	S.E.A.Q.
Redcliffe	S.E.A.Q.
Redgate	W.B.–B.R.E.B.
Redland Bay	S.E.A.Q.
Redlynch	C.R.E.B.
*Red Mountain	M.R.E.B.
Redridge	W.B.–B.R.E.B.
*Redvale	W.B.–B.R.E.B.
Reedy Creek	W.B.–B.R.E.B.
Reesville	S.E.A.Q.
Reid River	T.R.E.B.
Reid's Creek	W.B.–B.R.E.B.
Reliance Creek	M.R.E.B.
Reynold's Creek	S.E.A.Q.
Richmond	M.R.E.B.
Richmond	T.R.E.B.
Ridgewood	S.E.A.Q.
Rifle Range Pocket	S.E.A.Q.
Ringtail Road	S.E.A.Q.
Riordonvale	M.R.E.B.
Ripley	S.E.A.Q.
Ripple Creek	T.R.E.B.
*Rise and Shine	M.R.E.B.
Rita Island	T.R.E.B.
River Estate	M.R.E.B.
Riverleigh	W.B.–B.R.E.B.
Riverston	Cap. R.E.B.
Riverview	S.E.A.Q.
Roadvale	S.E.A.Q.
Rockbrae	S.E.A.Q.
Rockfield	S.E.A.Q.
Rockhampton	Cap. R.E.B.
*Rockingham	C.R.E.B.
Rockmount	S.E.A.Q.
Rocksberg	S.E.A.Q.
Rockside	S.E.A.Q.
Rockton	S.E.A.Q.
Rocky Creek	S.E.A.Q.
Rocky Glen	Cap. R.E.B.
Rocky Point	C.R.E.B.
Rodgers Creek	S.E.A.Q.
Rolleston	Cap. R.E.B.
Rollingstone	T.R.E.B.

APPENDIX XVIII—*continued*

LIST OF TOWNS AND LOCALITIES IN QUEENSLAND SUPPLIED WITH ELECTRICITY AS AT 1st JULY, 1972—continued

Locality	Electric Authority
Roma	Roma Town Council, Roma
Ropeley	S.E.A.Q.
Rosalie Plains	S.E.A.Q.
*Rosedale	W.B.–B.R.E.B.
Rosehill	S.E.A.Q.
Rosella	M.R.E.B.
Rosemount	S.E.A.Q.
Rosendale	W.B.–B.R.E.B.
Roseneath	T.R.E.B.
Rosenthal	S.E.A.Q.
Rosevale	S.E.A.Q.
Rosewood	S.E.A.Q.
Ross Creek	S.E.A.Q.
Rossmore	W.B.–B.R.E.B.
Rossmoya	Cap. R.E.B.
Ross River (Upper)	T.R.E.B.
Ross Vale	S.E.A.Q.
Rubyanna	W.B.–B.R.E.B.
*Rumula	C.R.E.B.
Running Creek	S.E.A.Q.
Russell Island	S.E.A.Q.
Russell's Siding	S.E.A.Q.
Rush Creek	S.E.A.Q.
Ryeford	S.E.A.Q.
*Rywung	Dalby Town Council, Dalby

S

Locality	Electric Authority
Sabine	S.E.A.Q.
St. Aubyn	S.E.A.Q.
St. George	Balonne Shire Council, St. George
St. Helens	W.B.–B.R.E.B.
*St. Helen's Beach	M.R.E.B.
St. Lawrence	Cap. R.E.B.
St. Ruth	S.E.A.Q.
*St. Ruth	Dalby Town Council, Dalby
Saldevale	S.E.A.Q.
Saleine	S.E.A.Q.
*Salisbury Plains	T.R.E.B.
Saltworks (Bajool)	Cap. R.E.B.
Samford	S.E.A.Q.
Samsonvale	S.E.A.Q.
Sandy Camp	S.E.A.Q.
Sandy Creek	S.E.A.Q.
Sandy Creek	Cap. R.E.B.
*Sandy Creek	M.R.E.B.
Sandy Gully	S.E.A.Q.
Sarina	M.R.E.B.
Sarina Beach	M.R.E.B.
**Sarina Range	M.R.E.B.
Saunders Beach	T.R.E.B.
**Sawmill Pocket	C.R.E.B.
Scarness	W.B.–B.R.E.B.
Scotchy Pocket	W.B.–B.R.E.B.
Scottsville	T.R.E.B.
Scrubby Creek	S.E.A.Q.
Scrub Creek	S.E.A.Q.
Seaforth	M.R.E.B.
*Second Beach	C.R.E.B.
Selene	Cap. R.E.B.
Sellheim	T.R.E.B.
*Septimus	M.R.E.B.
Seven Mile	S.E.A.Q.
Severnlea	S.E.A.Q.
*Sexton	W.B.–B.R.E.B.
Shannonvale	C.R.E.B.
Sharon	W.B.–B.R.E.B.
Shaws Pocket	S.E.A.Q.
Sheep Station Creek	S.E.A.Q.
Shepperd	S.E.A.Q.
Shinfield	M.R.E.B.
Shirbourne	T.R.E.B.
Shirley	S.E.A.Q.
Shoal Bay	Cap. R.E.B.
Shoal Point	M.R.E.B.
Shute Harbour	M.R.E.B.
*Silent Grove	M.R.E.B.
Silkwood	C.R.E.B.
Silky Oak	C.R.E.B.
Silverdale	S.E.A.Q.
Silverleaf	W.B.–B.R.E.B.
Silverleigh	S.E.A.Q.
*Silver Spur	North-West County Council, Inverell, New South Wales
Sister Tree Creek	S.E.A.Q.
Six Mile Creek	S.E.A.Q.
Skyring Creek	S.E.A.Q.
Slack's Creek	S.E.A.Q.
Slade Point	M.R.E.B.
Sladevale	S.E.A.Q.
*Sleipner	Cap. R.E.B.
*Smalley's Beach	M.R.E.B.
Smithfield	C.R.E.B.
Smith's Crossing	W.B.–B.R.E.B.
Snake Creek	W.B.–B.R.E.B.
Snake Gully	S.E.A.Q.
Solanum	C.R.E.B.
Somerset Dam	S.E.A.Q.
Somerset	S.E.A.Q.
South Bingera	W.B.–B.R.E.B.
South Booie	W.B.–B.R.E.B.
Southbrook	S.E.A.Q.
South Deeford	Cap. R.E.B.
*South Gordonbrook	W.B.–B.R.E.B.
South Isis	W.B.–B.R.E.B.
South Johnstone	C.R.E.B.
South Kalkie	W.B.–B.R.E.B.
South Kolan	W.B.–B.R.E.B.
*South Mission Beach	C.R.E.B.
South Mossman	C.R.E.B.
South Pine	S.E.A.Q.
Southport	S.E.A.Q.
South Sarina	M.R.E.B.
South Tamborine	S.E.A.Q.
*Southwood	Dalby Town Council, Dalby
*Speedwell	W.B.–B.R.E.B.
Splitters Creek	W.B.–B.R.E.B.
Springbrook	S.E.A.Q.
Spring Bluff	S.E.A.Q.
Spring Creek	S.E.A.Q.
Spring Creek	T.R.E.B.
Spring Creek	C.R.E.B.
*Springmount	C.R.E.B.
Spring Side	S.E.A.Q.
Springsure	Cap. R.E.B.
Spring Valley	S.E.A.Q.
Springwood	S.E.A.Q.
Square Top	Dalby Town Council, Dalby
*Stalworth	W.B.–B.R.E.B.
*Stamford	T.R.E.B.
Stanley	T.R.E.B.
Stanmore	S.E.A.Q.
Stanthorpe	S.E.A.Q.
Stanwell	Cap. R.E.B.
Stapylton	S.E.A.Q.
Sterling's Crossing	S.E.A.Q.
Stockleigh	S.E.A.Q.
Stockyard Creek	S.E.A.Q.
Stone River	T.R.E.B.
Storm King Dam	S.E.A.Q.
Stirling Crossing	S.E.A.Q.
Stratford	C.R.E.B.
*Strathdickie	M.R.E.B.
Strathpine	S.E.A.Q.
*Struck Oil	Cap. R.E.B.
Sugarloaf	S.E.A.Q.
Sugarloaf	M.R.E.B.
Summer Hill	S.E.A.Q.
Summerholm	S.E.A.Q.
Sundown	C.R.E.B.
**Sunnyside	M.R.E.B.
*Sunnyvale	Dalby Town Council, Dalby
Sunrise Road	S.E.A.Q.
Sunshine Beach	S.E.A.Q.
Surat	Roma Town Council, Roma
Surfers Paradise	S.E.A.Q.
Swanbank	S.E.A.Q.
Swan Creek	S.E.A.Q.
Swanfels	S.E.A.Q.
*Swayneville	M.R.E.B.
*Sybil Creek	M.R.E.B.
Sylvan Beach	S.E.A.Q.
Sylvia Vale	S.E.A.Q.

T

Locality	Electric Authority
Taabinga	W.B.–B.R.E.B.
Tabacum	C.R.E.B.
Tabooba	S.E.A.Q.
Tabragalba	S.E.A.Q.
*Takalvan	W.B.–B.R.E.B.
*Takoko	W.B.–B.R.E.B.
Takura	W.B.–B.R.E.B.
Talgai	S.E.A.Q.
Tallebudgera	S.E.A.Q.
Tallegalla	S.E.A.Q.
Talwood	North-West County Council, Inverell, New South Wales
Tamaree	S.E.A.Q.
Tambo	C.W.R.E.B.
Tamborine (North and South)	S.E.A.Q.
Tamborine (Eagle Heights)	S.E.A.Q.
Tamborine Village	S.E.A.Q.
Tamrookum	S.E.A.Q.
Tamrookum Creek	S.E.A.Q.
Tanawha	S.E.A.Q.
Tanby	Cap. R.E.B.
Tandur	S.E.A.Q.
*Tanduringee	W.B.–B.R.E.B.
*Tangorin	T.R.E.B.
Trangkam	S.E.A.Q.
*Tannalo	M.R.E.B.
Tannum Sands	Cap. R.E.B.
Tannymorel	S.E.A.Q.
Tansey	W.B.–B.R.E.B.
**Tara	Dalby Town Council, Dalby
*Tara Creek	M.R.E.B.
**Taragoola	Cap. R.E.B.
Tarampa	S.E.A.Q.
**Targinnie	Cap. R.E.B.
Tarome	S.E.A.Q.
*Taromeo	W.B.–B.R.E.B.
Tarong	W.B.–B.R.E.B.
Taroom	Cap. R.E.B.
Tarzali	C.R.E.B.
Taylor	S.E.A.Q.
Taylors Beach	T.R.E.B.
Teddington	W.B.–B.R.E.B.
*Teebar	W.B.–B.R.E.B.
*Teelba	Dalby Town Council, Dalby
Tekowai	M.R.E.B
Telemon	S.E.A.Q.
*Tellebang	Cap. R.E.B.
Templin	S.E.A.Q.
Tenthill (Lower)	S.E.A.Q.
Teviotville	S.E.A.Q.
Tewantin	S.E.A.Q.
Texas	North-West County Council, Inverell, New South Wales
Thabeban	W.B.–B.R.E.B.
Thagoona	S.E.A.Q.
Thallon	Balonne Shire Council, St. George
Thanes Creek	S.E.A.Q.
Thangool	Cap. R.E.B.
Thargomindah	Bulloo Shire Council, Thargomindah
The Bluff	S.E.A.Q.
The Caves	Cap. R.E.B.
**The Cedars	M.R.E.B.
Theebine	W.B.–B.R.E.B.
The Glen	S.E.A.Q.
*The Gums	Dalby Town Council, Dalby
The Hollows	S.E.A.Q.
The Junction	S.E.A.Q.
The Leap	M.R.E.B.
Theodore	Cap. R.E.B.
**The Palms	M.R.E.B.
The Pocket	S.E.A.Q.
The Summit	S.E.A.Q.
**Thoopara	M.R.E.B.
Thorndale	S.E.A.Q.
Thornlands	S.E.A.Q.
Thornton	S.E.A.Q.
Thornside	S.E.A.Q.
Thornville	S.E.A.Q.
Three Moon	Cap. R.E.B.
Thulimbah	S.E.A.Q.
Thursday Island	C.R.E.B.
Tiaro	W.B.–B.R.E.B.
*Tinaburra	C.R.E.B.
Tinana	W.B.–B.R.E.B.
Tinaroo Dam	C.R.E.B.
Tinbeerwah	S.E.A.Q.
Tin Can Bay	S.E.A.Q.
Tingoora	W.B.–B.R.E.B.
*Tipton	Dalby Town Council, Dalby
Tipton	S.E.A.Q.
Tipton Bridge	S.E.A.Q.
*Tirroan	W.B.–B.R.E.B.
Tokalon	T.R.E.B.
Tolga	C.R.E.B.
Toobanna	T.R.E.B.
Toobeah	North-West County Council, Inverell, New South Wales
Toogoolawah	S.E.A.Q.
Toogoom	W.B.–B.R.E.B.
Toolara	S.E.A.Q.
Toolburra	S.E.A.Q.
Toolooa	Cap. R.E.B.
Toonda	Cap. R.E.B.
*Toonpan	T.R.E.B.
Toorbul	S.E.A.Q.
Toowoomba	S.E.A.Q.
*Topaz	C.R.E.B.
Torbanlea	W.B.–B.R.E.B.
Torquay	W.B.–B.R.E.B.
*Torrens Creek	T.R.E.B.
Torrington	S.E.A.Q.
Towen Mount	S.E.A.Q.
Townson	S.E.A.Q.
Townsville	T.R.E.B.
Traveston	S.E.A.Q.
Trebonne	T.R.E.B.
Tregony	S.E.A.Q.
Trinder Park	S.E.A.Q.
Trinity Beach	C.R.E.B.
Trotters Creek	Cap. R.E.B.
**Trueman Siding	M.R.E.B.
*Tuan	W.B.–B.R.E.B.
*Tuan Forestry	W.B.–B.R.E.B.
Tuchekoi	S.E.A.Q.
Tugun	S.E.A.Q.
Tula	C.R.E.B.
*Tullagrie	Dalby Town Council Dalby
Tully	C.R.E.B.
Tully Falls	C.R.E.B.
Tully Heads	C.R.E.B.
Tummaville	S.E.A.Q.
**Tumoulin	C.R.E.B.
Turkey	S.E.A.Q.
Turkinje	C.R.E.B.
**Turnorville	M.R.E.B.
Turulka	C.R.E.B.
Two Mile	S.E.A.Q.
Tylerville	S.E.A.Q.

U

Locality	Electric Authority
Ubobo	Cap. R.E.B.
**Ulimaroa	Dalby Town Council, Dalby
Umbiram	S.E.A.Q.
*Undulla	Dalby Town Council, Dalby
Undullah	S.E.A.Q.
Upper Albert River	S.E.A.Q.
**Upper Barron	C.R.E.B.
Upper Caboolture	S.E.A.Q.
Upper Christmas Creek	S.E.A.Q.
Upper Coomera	S.E.A.Q.
Upper Coomera Wier	S.E.A.Q.
Upper Currumbin Creek	S.E.A.Q.
*Upper Daintree	C.R.E.B.
Upper Daradgee	C.R.E.B.
Upper Flagstone Creek	S.E.A.Q.
Upper Freestone	S.E.A.Q.
Upper Glastonbury	S.E.A.Q.
Upper Kandanga	S.E.A.Q.
Upper Koondai-i	Dalby Town Council, Dalby
Upper Mudgeeraba	S.E.A.Q.
Upper Numinbah	S.E.A.Q.

APPENDIX XVIII—*continued*

LIST OF TOWNS AND LOCALITIES IN QUEENSLAND SUPPLIED WITH ELECTRICITY AS AT 1st JULY, 1972—continued

Locality	Electric Authority
Upper Pilton	S.E.A.Q.
Upper Running Creek	S.E.A.Q.
Upper Spring Creek	S.E.A.Q.
Upper Tallebudgera	S.E.A.Q.
Upper Tenthill	S.E.A.Q.
Upper Tinana Creek	W.B.–B.R.E.B.
Upper Wheatvale	S.E.A.Q.
*Upper Widgee	W.B.–B.R.E.B.
Upper Yarraman	W.B.–B.R.E.B.
Up River	T.R.E.B.
Urangan	W.B.–B.R.E.B.
Urraween	W.B.–B.R.E.B.
**Uruba Siding	M.R.E.B.
*Utchee Creek	C.R.E.B.
V	
Valdora	S.E.A.Q.
**Valentine Plains	Cap. R.E.B.
Vale View	S.E.A.Q.
*Ventnor	Cap. R.E.B.
Veresdale	S.E.A.Q.
Veresdale Scrub	S.E.A.Q.
Vernor	S.E.A.Q.
Verrierdale	S.E.A.Q.
Veteran	S.E.A.Q.
Victoria Estate	T.R.E.B.
Victoria Hill	S.E.A.Q.
**Victoria Plains	M.R.E.B.
Victoria Point	S.E.A.Q.
Villeneuve	S.E.A.Q.
*Vine Creek	C.R.E.B.
Virginia	S.E.A.Q.
W	
*Wagoora	M.R.E.B.
Wahpunga	S.E.A.Q.
Waimea	W.B.–B.R.E.B.
*Waitara	M.R.E.B.
Walkamin	C.R.E.B.
*Walker's Point	W.B.–B.R.E.B.
Walkerston	M.R.E.B.
*Walla Lagoon	W.B.–B.R.E.B.
Wallangarra	Tenterfield Municipal Council, Tenterfield, New South Wales
Wallaroo Siding	Cap. R.E.B.
Wallaville	W.B.–B.R.E.B.
Walli Creek	S.E.A.Q.
*Wallingford	M.R.E.B.
Wallingford	S.E.A.Q.
Walloon	S.E.A.Q.
Wallumbilla	Roma Town Council, Roma
Walmul	Cap. R.E.B.
Walterhall	Cap. R.E.B.
Wamuran	S.E.A.Q.
Wamuran Basin	S.E.A.Q.
Wandoan	Cap. R.E.B.
Wangan	C.R.E.B.
Waraperta	S.E.A.Q.
*Waringa	W.B.–B.R.E.B.
*Warkon	Roma Town Council, Roma
Warra	Dalby Town Council, Dalby
Warrawee	S.E.A.Q.
Warren	Cap. R.E.B.
Warrill View	S.E.A.Q.
*Warroo	North-West County Council, Inverell, New South Wales
**Warrubullen	C.R.E.B.
Warwick	S.E.A.Q.
Watalgan	W.B.–B.R.E.B.
Waterford	S.E.A.Q.
*Waterloo	W.B.–B.R.E.B.
*Waterson	M.R.E.B.
Waterview	T.R.E.B.
*Watch Box	W.B.–B.R.E.B.
*Watsonville	C.R.E.B.
Wattlebank	Cap. R.E.B.
*Wattlegrove	W.B.–B.R.E.B.
Watt's Siding	S.E.A.Q.
Waugh	C.R.E.B.
*Weengallon	Balonne Shire Council St. George
Weerimba	C.R.E.B.
Wegeners Flats	S.E.A.Q.
†Weipa	Commonwealth Aluminium Corporation Limited
Welcome Creek	W.B.–B.R.E.B.
Wellcamp	S.E.A.Q.
Wellington Point	S.E.A.Q.
*Wengenville	W.B.–B.R.E.B.
*Weranga	Dalby Town Council, Dalby
Westbrook	S.E.A.Q.
West Burleigh	S.E.A.Q.
West Feluga	C.R.E.B.
West Haldon	S.E.A.Q.
*West Hill	M.R.E.B.
Westmar	North-West County Council, Inverell, New South Wales
**West Paddys Green	C.R.E.B.
**West Plane Creek	M.R.E.B.
West Thornlands	S.E.A.Q.
Westwood	Cap. R.E.B.
Westwood Range	Cap. R.E.B.
Wetalla	S.E.A.Q.
Wetheron	W.B.–B.R.E.B.
Weyba	S.E.A.Q.
Wheatlands	W.B.–B.R.E.B.
Wheatley Beach	C.R.E.B.
Wheatvale	S.E.A.Q.
Whelans Road	S.E.A.Q.
Whichello	S.E.A.Q.
*White Bridge	W.B.–B.R.E.B.
Whiterock	C.R.E.B.
Whiteside	S.E.A.Q.
*Whitewood	T.R.E.B.
Whyanbeel	C.R.E.B.
Widgee Creek	S.E.A.Q.
Widgee Crossing	S.E.A.Q.
Wilangi	Cap. R.E.B.
Wildash	S.E.A.Q.
Wilga View	S.E.A.Q.
Willowburn	S.E.A.Q.
Willow Vale	S.E.A.Q.
Wilmay	S.E.A.Q.
*Wilsons Beach	M.R.E.B.
Wilson's Plains	S.E.A.Q.
Wilson's Pocket	S.E.A.Q.
Wilsonton	S.E.A.Q.
Wilthorn	S.E.A.Q.
Windaroo	S.E.A.Q.
*Windera	W.B.–B.R.E.B.
*Windermere	W.B.–B.R.E.B.
Winton	T.R.E.B.
Win Will	S.E.A.Q.
Winya	S.E.A.Q.
Wijarra	S.E.A.Q.
Wirpoo	C.R.E.B.
Withcott	S.E.A.Q.
Witheren	S.E.A.Q.
Witta	S.E.A.Q.
Wivenhoe Pocket	S.E.A.Q.
*Wolca	W.B.–B.R.E.B.
Wolffdene	S.E.A.Q.
Wolvi	S.E.A.Q.
Wondai	W.B.–B.R.E.B.
Wondecla	C.R.E.B.
**Wonga	C.R.E.B.
Wongaling Beach	C.R.E.B.
Wonga-Wallen	S.E.A.Q.
Wonglepong	S.E.A.Q.
*Wongongera	Dalby Town Council, Dalby
Woodbine	S.E.A.Q.
Woodbury	Cap. R.E.B.
Woodford	S.E.A.Q.
Woodgate	W.B.–B.R.E.B.
Wood Hill	S.E.A.Q.
Woodlands	S.E.A.Q.
*Woodleigh	C.R.E.B.
Woodleigton	S.E.A.Q.
*Woodmillar	W.B.–B.R.E.B.
Woodridge	S.E.A.Q.
Woodstock	T.R.E.B.
Woodview	S.E.A.Q.
Woolmar	S.E.A.Q.
Woolooga	W.B.–B.R.E.B.
Woolshed Creek	S.E.A.Q.
Woombye	S.E.A.Q.
Woondum	S.E.A.Q.
Woongoolba	S.E.A.Q.
Woorabinda	Cap. R.E.B.
Woorim	S.E.A.Q.
*Wooroodeen	W.B.–B.R.E.B.
Wooroolin	W.B.–B.R.E.B.
Wootha	S.E.A.Q.
*Woowoonga	W.B.–B.R.E.B.
Woppa	S.E.A.Q.
Woree	C.R.E.B.
Wowan	Cap. R.E.B.
Wright's Creek	C.R.E.B.
Wulkuraka	S.E.A.Q.
*Wumalgi	Cap. R.E.B.
Wunburra	S.E.A.Q.
Wundaru	M.R.E.B.
Wuruma Dam	W.B.–B.R.E.B.
*Wutul	W.B.–B.R.E.B.
Wyandra	Paroo Shire Council, Cunnamulla
Wyangapinni	S.E.A.Q.
Wyaralong	S.E.A.Q.
Wycarbah	Cap. R.E.B.
Wyreema	S.E.A.Q.
Y	
Yaamba	Cap. R.E.B.
Yabba Vale	S.E.A.Q.
Yabula	T.R.E.B.
Yadjin	C.R.E.B.
Yakapari	M.R.E.B.
Yalangur	S.E.A.Q.
*Yalbaroo	M.R.E.B.
*Yamsion	Dalby Town Council, Dalby
Yandaran	W.B.–B.R.E.B.
Yandilla	S.E.A.Q.
Yandina	S.E.A.Q.
Yandina Creek	S.E.A.Q.
Yangan	S.E.A.Q.
Yaralla	Dalby Town Council, Dalby
Yargullen	S.E.A.Q.
Yaroomba	S.E.A.Q.
Yarrabah	C.R.E.B.
Yarraman	W.B.–B.R.E.B.
Yarranlea	S.E.A.Q.
Yarwun	Cap. R.E.B.
Yatala	S.E.A.Q.
Yatee	C.R.E.B.
Yednia	S.E.A.Q.
Yelarbon	North-West County Council, Inverell, New South Wales
Yellow Wood	S.E.A.Q.
*Yengarie	W.B.–B.R.E.B.
Yeppoon	Cap. R.E.B.
*Yerra	W.B.–B.R.E.B.
Yorkey's Knob	C.R.E.B.
Young's Crossing	S.E.A.Q.
**Yukan	M.R.E.B.
Yuleba	Roma Town Council, Roma
Yuleba Creek	Roma Town Council, Roma
*Yule Point	C.R.E.B.
Yungaburra	C.R.E.B.
Yuruga	T.R.E.B.
Z	
Zilzie	Cap. R.E.B.

† Towns where Licences have been granted to permit of a supply of electricity being given within a restricted area.

By Authority: S. G. REID, Government Printer, Brisbane

QUEENSLAND

SHEET Nº 1

ELECTRICITY SUPPLY SYSTEM — GENERATION TRANSMISSION AND DISTRIBUTION

1972

	OPERATING	UNDER CONSTRUCTION	STANDBY
STEAM POWER STATION	■	◧	□
HYDRO POWER STATION	▲	◭	△
GAS TURBINE POWER STATION	◆	◈	◇
INTERNAL COMBUSTION POWER STATION	●	◐	○

- 275,000 VOLT TRANSMISSION LINES
- 132,000 VOLT TRANSMISSION LINES
- 110,000 VOLT TRANSMISSION LINES
- 66,000 VOLT TRANSMISSION LINES
- 33,000 VOLT TRANSMISSION LINES
- 22,000 VOLT TRANSMISSION LINES
- 11,000 VOLT TRANSMISSION LINES
- S.W.E.R. TRANSMISSION LINES

Lines under construction shown dotted

40 30 20 10 0 40 80 120

Scale in Miles

AREAS OF SUPPLY

1. CAIRNS REGIONAL ELECTRICITY BOARD
2. TOWNSVILLE REGIONAL ELECTRICITY BOARD
3. MACKAY REGIONAL ELECTRICITY BOARD
4. CAPRICORNIA REGIONAL ELECTRICITY BOARD
5. WIDE BAY BURNETT REGIONAL ELECTRICITY BOARD
6. SOUTHERN ELECTRIC AUTHORITY OF QUEENSLAND
7. BRISBANE CITY COUNCIL
8. DALBY TOWN COUNCIL
9. NORTH WESTERN ELECTRIC AUTHORITY
10. ROMA TOWN COUNCIL
11. INCLUDED IN NORTH-WEST COUNTY COUNCIL OF NEW SOUTH WALES
12. CENTRAL WESTERN REGIONAL ELECTRICITY BOARD
13. MURWEH SHIRE COUNCIL
14. BALONNE SHIRE COUNCIL
15. PAROO SHIRE COUNCIL
16. BULLOO SHIRE COUNCIL
17. QUILPIE SHIRE COUNCIL
18. BARCOO SHIRE COUNCIL
19. DIAMANTINA SHIRE COUNCIL
20. BOULIA SHIRE COUNCIL

THURSDAY ISLAND
WEIPA
NORMANTON
GEORGETOWN
CAMOOWEAL
MT ISA
Mary Kathleen
Cloncurry
Julia Creek
Richmond
HUGHENDEN
Torrens Ck.
Prairie
Pentland
McKINLAY
Winton
BOULIA
BEDOURIE
JUNDAH
WINDORAH
BIRDSVILLE
QUILPIE
CHARLEVILLE
Augathella
Morven
Wyandra
CUNNAMULLA
THARGOMINDAH
Cooktown
Daintree
Mossman
Mt. Molloy
Mareeba
Almaden
Atherton
Mt Garnet
KAREEYA
Tully
Innisfail
Cairns
BARRON GORGE
Ingham
Bambaroo
Garbutt
TOWNSVILLE
Stuart
Woodstock
Giru
Ayr
Clare
Charters Towers
Millaroo
Dalbeg
COLLINSVILLE
Gumlu
Guthalungra
Bowen
Proserpine
Dysart
Moranbah
Goonyella
Eungella
Pinnacle
Mackay
Hay Point
Sarina
Nebo
Carmila
St.Lawrence
Blair Athol
Clermont
Capella
Emerald
Springsure
Ogmore
Marlborough
Yaamba
Yeppoon
ROCKHAMPTON
Blackwater
Bluff
Mt. Morgan
Duaringa
Biloela
Gogango
GLADSTONE
Baralaba
CALLIDE
Nagoorine
Miriam Vale
Monto
Bundaberg
Childers
HOWARD
Maryborough
Cracow
Taroom
Wandoan
Injune
Mundubbera
Eidsvold
Wuruma Dam
Kilkivan
Gympie
Nambour
Proston
Kingaroy
Nanango
Yarraman
Dalby
Chinchilla
Tandowae
Miles
Condamine
Dulacca
Roma
Yuleba
Surat
Mitchell
Mungallala
Meandarra
Tara
Moonie
SOMERSET DAM
Redcliffe
BRISBANE
IPSWICH
TOOWOOMBA
Beaudesert
Warwick
Southport
Burleigh
Murwillumbah
Stanthorpe
Texas
Inglewood
Yelarbon
Goondiwindi
Talwood
Thallon
Dirranbandi
Hebel
Mungindi
Bollon
St. George
Mutta burra
Aramac
Morella
LONGREACH
Ilfracombe
BARCALDINE
Jericho
Alpha
Isisford
Blackall
Tambo

MAJOR POWER STATIONS
10MW and over.
installed capacity

BARRON GORGE
Hydro 60 MW

KAREEYA
Hydro 72 MW

TOWNSVILLE
Steam 37·5 MW

COLLINSVILLE
Steam 120 MW
Plus 60MW on order

ROCKHAMPTON
Steam 52·5MW
Gas Turbine 25 MW

CALLIDE
Steam 120MW

GLADSTONE
1100MW on order

HOWARD
Steam 37·5MW

For details of S.E.A Power Stations see Sheet Nº 2

NOTE.
FOR NORTHERN ELECTRIC AUTHORITY & SOUTHERN ELECTRIC AUTHORITY SYSTEMS SEE SHEET NO. 2.

1972

NORTHERN ELECTRIC AUTHORITY OF QUEENSLAND

SYSTEM OF GENERATION & TRANSMISSION

For Legend see Sheet No.1

Scale in Miles

40 30 20 10 0 40 80

Bulk Supply Points to R.E.Bs shown thus ⊗

Mossman
BARRON GORGE
Cairns
Turkinje
Innistail
KAREEYA
Tully
Ingham
TOWNSVILLE
Garbutt
Stuart
Clare
Charters Towers
COLLINSVILLE
Mackay
Moranbah
1
2
3
4

SOUTHERN ELECTRIC AUTHORITY OF QUEENSLAND

SYSTEM OF GENERATION, TRANSMISSION & DISTRIBUTION

STEAM POWER STATIONS

S - SWANBANK 'A' - 396 MW
SWANBANK 'B' - 360 MW plus
- 120 MW on order
T - TENNYSON - 240 MW
B - BULIMBA - 245 MW

GAS TURBINE POWER STATIONS

S - SWANBANK 'C' - 30 MW
M - MIDDLE RIDGE - 60 MW

HYDRO POWER STATIONS

SOMERSET DAM - 3·2 MW

Tin Can Bay
Kilkivan
Gympie
Cooroy
Tewantin
Kenilworth
Nambour
Maleny
Caloundra
Landsborough
Kilcoy
Woodford
Toogoolawah
SOMERSET DAM
Caboolture
Peranga
Dalby
Crows Nest
Esk
Redcliffe
South Pine
BRISBANE
Jondaryan
Oakey
Postmans Ridge
Cecil Plains
Norwin
TOOWOOMBA
IPSWICH
Dunwich
Laidley
Rosewood
Ormiston
Pampas
Yarranlea
Broxburn
Milmerran
Clifton
Kalbar
Beaudesert
Molendinar
Broadbeach
Allora
Burleigh
Warwick
Coolangatta
Killarney
Murwillumbah
Cudgen
New South Wales
Stanthorpe
5
6
7
8

Scale in Miles

20 15 10 5 0 20 40